Hong Kong Property Market:

A Comparison between Company and Individual Investors

LAW Wai-ling

A Thesis Submitted in Partial Fulfillment

of the Requirements for the Degree of

Master of Philosophy

in

Economics

Supervised by Charles Leung Ka-yui

August 2000


香港中文大學
圖書館系統
28 JUN 2001
UNIVERSITY
LIBRARY SYSTEM
THE CHINESE UNIVERSITY OF HONG KONG

ABSTRACT

To most people in Hong Kong, real estate is perhaps the most important asset. Investors engaged in Hong Kong property market can be divided into company and individual investors. This thesis examines the differences between the behavior of these two kinds of investors by comparing the number of transactions, duration and rates of return. Over the study period, from 1991 to 1998, around 15% of the total transactions is made by company investors. It is found that company investors generally hold their premise for a longer period and earn a higher rate of return than individual investors. The differences in duration and rates of return between two types of investors are tested to be significant by Analysis of Variance (ANOVA). Grouping the duration data and the rates of return data respectively, the distributions of company and individual investors are different. The results found in aggregate data are robust even when we divide the sample into 3 categories in terms of floors of premises, sizes of premises and districts.

摘要

房地產乃是香港一項重要的資產。在香港地產市場中，投資者可分爲：公司投資者及個人投資者兩類。本論文主要集中研究兩者之間在成交量、持樓時間及回報率的分別。由一九九一年至一九九八年期間，公司投資者的成交量約佔總成交量百分之十五。而公司投資者的平均持樓時間比個人投資者爲短，但其在投資中所得的平均回報率卻比個人投資者爲高。經過變異數分析 (ANOVA)，說明以上分別在統計學上是顯著的。若把兩者的持樓時間及回報率進行組合，便可見他們在分佈上也有明顯的分別。縱然把所有資料根據實用面積、層數及地區準則作爲分類，但所歸納的結論也大致相同。

ACKNOWLEDGMENT

It's my pleasure to express thanks to my teachers who have been influential in my Master's education: Professor Leung Ka-yui (thesis supervisor), Professor Kwong Kai-sun, Professor Ho Ying-ping and Professor Wong Ka-fu.

To my deep gratitude, Professor Leung Ka-yui had managed to do regular brainstorming with me on my project for almost one year. His influence on me is certainly beyond the scope of just a thesis. Unconsciously, I've even assimilated to his serious attitudes towards acquiring knowledge, doing research, teaching student and serving God.

I'm glad to have Professor Kwong Kai-sun and Professor Ho Yin-ping as my thesis committee members. I owe a great deal to them for their kindness, patience and penetrating remarks. Thanks also go to Professor Wong Ka-fu for his encouragement and valuable comments.

I thank my senior fellow apprentice and graduate students for their listening to my joys and sorrow and for their exciting discussions: Doris Chan, Doris Cheung, Ho Wing Kee, Bosco Ho, Desmond Hou, Rees Kam, Dick Lai, Winze Lai, Garion Lau, Lau Yuk Hoi, Ken Lee, Benz Leung, Maggie Leung, Paul Ng, Suen Kin Fai, Sylvia Tong, Eric Wong, Wu Haijun and Yu Qing. (in alphabetical order)

Finally, I wish to thank my family, especially my grandmother, for their wholehearted support and eternal love.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

Chapter 1

Introduction

In Hong Kong, real estate is unusually important. For instance, Brown and Chau (1997) report that the total value of all real estate in Hong Kong exceeds the total value of all shares, cash and deposit. Among different types of real estates, residential constitutes the major share. Figure 1.1 shows that the total size of all private residential in square meters is almost as large as three times of the sum of non-residential property including office, commercial premises, industrial, factories and storage. This thesis would be devoted to study a certain aspect of the Hong Kong residential real estate market.

Apparently, company investors have a larger share in Hong Kong property market than the United States counterparts. Goodman and Grupe (1995) and Simmons (1997) report that company investors owned 8.3% and 12% of all United States residential properties in 1991 and 1996 respectively. Hong Kong company investors own 10.5% in 1991 and even 14.1% in 1996 of

Hong Kong private residential property (see figure 1.2). Although individual ownership dominates the market, the influence of company investors cannot be neglected.

The aim of this thesis is to compare the difference between two types of investors with number of transactions, duration and rates of return.[1] Rates of return in this study are the capital return in non-weighted average.[2] Duration is simply equal to the time lag between two transactions in later discussion.[3] The structure of this thesis is summarized as follow. Chapter 2 reviews the literature on the speculation in property and financial markets, historical conditions and comparison between two types of investors. Chapter 3 provides definition of the data and terms utilized in later study. The methodology will also be explained in details. Chapter 4 describes the procedures of establishing a limited company and provides evidence to support why investors would like to use a company as the vehicle for transaction. Chapter 5 explores the empirical findings in number of transactions, duration and rates of return. Aggregated data and disaggregated

---

[1] We are limited by the data availability for more complete comparison.

[2] Fisher (1995) defines that "the capital return measures the effect of any appreciation or depreciation on the rate of return".

[3] Duration can have different meanings developed by Posner (1994), Waller and Chandy (1988), Eckstein and Wolpin (1995) and Hartzell, Shulman, Langetieg, Terence and Leibowitz (1988).

data from 1991 to 1998 are employed. To verify the significance of difference between two types of investors in duration and rates of return, Analysis of Variance (ANOVA) is measured. The next part is to group the records into different classes and investigate the pattern of distribution of duration and rates of return respectively. Chapter 6 is to match the findings explored in the chapter 5 with historical context and other authors' findings. Chapter 7 is the conclusion.

Chapter 2

Literature Review

The involvement of company investors in financial markets (broadly defined) is usually studied in the context of market speculation. To our knowledge, however, the literature on housing market speculation is relatively small. The literature regarding stock market speculation is voluminous and therefore they are included in the discussion, in the hope that they will be helpful to our investigation.

Cutler, Poterba and Summers (1990) suggest a framework of speculative dynamics by describing ways in which the characteristic return patterns might be generated. They also address the long-standing question of whether profitable speculation stabilizes asset markets. However, the studies have relied almost exclusively on equity returns in the U.S. Only for 1991 do they include returns in a wide range of asset markets. A diverse data set on asset returns suggests four regularities. First, returns tend to be positively serially correlated at high frequency. Second, they are weakly negatively serially correlated over long

horizons. Third, deviations of asset values from proxies for fundamental value have predictive power for returns. Fourth, short term interest rates are negatively correlated with excess returns on other assets.

Much is known about the comparison between institutional and individual investors in financial market. Etter, Rees and Lukawitz (1999) and Epstein and Pava (1994) state that institutional investors are more informative than individual investors so that institutional investors can perform better in financial market. Sias (1997) demonstrates that results fail to provide evidence that institutional investors offset the positions of individual investors. Massaro (2000) confirms that individual investors are more competitive with institutional investors by the Internet and the communications revolution in buying stocks.

Hutchison (1994) employs the data of U.K. and considers whether housing has been a successful investment in the short to medium term, both in absolute terms and in comparison with other investment instruments, such as equities and gilts for the period 1984-92. He finds that housing investment over this period has proven to be a good hedge against inflation, although the returns are less than those achieved on the equity market.

The Other Hong Kong Report provides a fruitful analysis on Hong Kong property market every year. Lau (1992) and Wong and Staley (1993) conclude several measures introduced by government to curb the intensifying speculative activities which causing considerable public concern. In addition, Wong and Staley (1993) clarify the difference in public and economist perception of speculation. Lai (1995) evaluates the effectiveness and implications of adopted policy measures. Fu (1996) intends to clarify the problems surfaced in property market and the policies needed to address these problems in 1995. As property prices soared rapidly in 1997, Lui (1998) focuses on factors related to the boom in the private property market. It stated that "one of the most popular explanations for the high housing prices is the speculators effect." In the first year that Hong Kong became a Special Administrative Region (SAR), the housing sector underwent dramatic changes. Chiu (1999) examines the changes in the nature of housing problems as a result of the Asian financial crisis.

Chou and Shih (1995) present an overview of Hong Kong housing market. They find that while increased demand for housing might have caused a sharp hike in prices, household income increased only mildly and could not keep pace with property price. Household income may exert even less influence on a

purchasing decision when home buyers are not owner-occupiers but actually investor.

Beveridge (1990) concludes that any economy experiencing recession faces high interest rates for longer period than was originally anticipated. It will cause over-supply in the property market which will take several years to clear and the trader/developers will be squeezed from all directions. The number of transaction will therefore decrease, which seems to be consistent with our casual observation.

The work of Case, Pollakowski and Wachter (1997) is close to us in spirit. They note that the standard deviation of the disturbance term associated with a particular property may be positively related to the length of time elapsed between transactions of that property. One explanation for this is that after a relatively long holding period, both buyers and sellers tend to have weaker information regarding the true market value of the property, and thus are more likely to agree on a transaction price that differs substantially from the market value. Conversely, frequent investor with stronger information will more likely to get such abnormal return.

In this thesis, we emphasis on the different between company and individual investors in property market. Most of these literatures do not illustrate Hong Kong property market as an example. Stanislas (1987) defines three types of British investors in the US real estate market, which include institutional investors, developers and individual investors. But the institutional investors in the US real estate market are insurance companies and pension plans of large UK firms, which are different from Hong Kong condition. Goodman and Grupe (1995) states out ten facts from the Census Bureau - the 1991 Survey of Residential Finance in the US. Only three out of ten findings are related to the comparison between company and individual investors. Just one of them, concluding that individual ownership dominates the market, is directly related to this paper.

Chapter 3

How and Why Do Company Investors Take Part in Property Market

Company investors have a significant market share in Hong Kong property market. Certainly, there must be some advantages in investing properties in the name of companies. This chapter tries to investigate such advantages of being a company investors in property market and state the ways to be company investors in Hong Kong.

To be eligible as company investors, the formation of a limited company is a must. There are two ways to incorporate a limited company. First, Company Registry provides facilities to allow the promoters of companies to incorporate their enterprises easily and to register all documentation required by the Business Registration Ordinance.[4] An unregistered company name and documents such as Memorandum and Articles of Association and a Statutory

[4] See Company Registry Homepage <http://www.info.gov.hk/cr>

Declaration of Compliance should be handed in together with the fee around HK$1800.[5] Normally, the certificate of incorporation will be issued in about 6 working days. With the certificate of incorporation, business registration certificate can be applied from Business Registration Office. The processing time for registration of business is 4 working days with the fee about HK$2250.

The other way is to purchase a "shell" company instead of establishing a new limited company. "Shell" company refers to a company which does not involve in any business anymore and is used for speculative activities in financial markets only. A shell company can be brought from registration limited[6]. It costs[7] about HK$8000 and takes only few days to complete the transaction. Under the provisions of the Business Registration Ordinance, every limited company must appoint at least two directors. After acquiring a limited company, the directors, who usually are the also shareholders, can buy a property under the name of their limited company. If a new buyer is found, it is

---

[5] Under linked exchange rate in Hong Kong, 1US$ is exchanged for about 7.8 HK$. Detail see Hong Kong Monetary Authority Homepage
<http://www.info.gov.hk/hkma/eng/currency/index.htm>

[6] Registration limited can provide a list of companies which are available for transferring company stock and changing directors.

possible to change the shareholders and directors of that company instead of transferring ownership of that property.

In 1997, nearly 20% of residential property involve company investors. Company investors have several advantages. Firstly, rates of stamp duty are lower for company investors. For individual investors, stamp duty on sale of immovable property is charged at rates, which vary with the amount or value of the property (see Appendix A). For company investors, stamp duty on transfer of company stock is charged at rates which vary with the amount or value of the stock (see Appendix B). The stamp duty on transfer of stock is much lower than that on sale of property. For example, in 1997, for a property with the value of HK$2,500,000 individual investors have to pay stamp duty on sale of property at the rate of 1.5% which is equal to HK$37,500. But company investors need to pay duty on the sale of transfer of stock at the rate of only 0.3% of the value of stock and HK$5 that is about HK$7,505.

Secondly, limited companies have limited liability by construction. It reduces the risk in buying advanced properties. Before the mortgage loans are

---

[7] Costs include price of that shell company and administration fee.

applied, if the property market undergoes a sudden drop in price, company investors can minimize the loss by declaring bankruptcy of the companies. However, if any company investors purchase exiting properties with personal guarantee in the mortgage contracts, such advantage vanishes.

Thirdly, if a company has its own business, purchasing flat under the name of company can reduce the profit tax. Interest of the mortgage can be counted as part of the deductible expenses in operating the company. Therefore, the amount of taxable profit is reduced.[8]

In recent years, lesser investors have used companies as the vehicles for transactions. The Democratic Party, Bank of China and USI Holdings has advised the Special Administrative Region (SAR) government to consider imposing taxes on short-term residential trading to damp down the housing market in June, 1997[9]. However, because of Asian financial crisis in 1998, property prices had fallen sharply and it has been said that speculators had

---

[8] Tax is an important element in distinguishing two types of investors in Hong Kong. Rypkema, Donovan and Cohen (1987) also try to explain that how does the Tax Reform Act lead to non-taxable company investors may replace individual investors in the residential market.

[9] See South China Morning Post, 19 June 1997, 26 June 1997 and 27June 1997 respectively.

almost left the market. No measure above mentioned is announced. In addition, from year 1998/99 onwards, home loan interest paid is deductible from a person's assessable income under salaries tax, subject to a maximum deduction of HK$100,000 for a year of assessment. This further lowers the incentive to invest as company investors.

Chapter 4

Methodology

Data Collection

All records are extracted from the property data base provided by the Economic Property Research Centre (EPRC) in Economic Times. The study period is between January 1991 and November 1998. According to EPRC, there are 46 most frequently traded estates and this thesis focuses on those estates. (See Appendix C) Near 200,000 records are sorted and manipulated by Macro program in Excel[10].

Data Description

In the property data set, the names of buyer and seller are recorded. When the seller's name includes words like "Company", "Limited", "Ltd" or "Co", such record will be regarded as a transaction belongs to company investors. Otherwise, it will be regarded as individual investors.

---

[10] Part of the Marco program can be found in Appendix D.

To diagnosis the difference in behavior of company and individual investors, we further differentiate the estates into groups according to different criteria. First, we want to know whether the difference in behavior of two types of investors is due to the preference for apartments of different heights.[11] For each premise, we divide into 3 equal parts and the highest part is high level, middle part is middle level and smallest part is low level. To highlight the effect of "height", the middle level apartments are excluded. We compare the holding duration and rates of return between the higher and the lower premises. Second, we want to separate the preference for different size for each type of investors from the "inherent" difference in behavior of company and individual investors. Two types of premises are defined under the Hong Kong Statistical Department, that is, small and medium, and large premises. Premises which over $100m^2$ are defined as large premises, otherwise, these are regarded as small and medium premises. If an estate consists of two types of premises at the same time, that estate will be excluded from the sample. Third, to divide the estates according to geographical location, we categorize the estates into one of the three districts: Hong Kong Island, Kowloon and New Territories, as in the data set of EPRC.

---

[11] Since residential in Hong Kong is almost in high density, the heights of apartment may affect the sea-view, quietness, etc.

Calculation

This thesis intends to compare the behavior of company and individual investors. In particular, the information of the number of transactions, duration and rates of return is available from the data set and the analysis will be focused on these dimensions. Number of transactions is simply calculated by counting the total number of transactions in each year. Duration represents the holding period of a premise by a investor. It can be calculated by measuring the difference between two transaction dates of the same premise. Capital gain with time adjustment is used as a device in computing the rates of return. The formula is as follow:

$$\frac{P_1 - P_0}{P_0} * \frac{1}{D} * 365 * 100\%$$

P_0 = purchasing price

P_1 = selling price

D = Duration in days

To gain a quantitative sense of the potential difference, the means of the two samples are measured. The formula is as follow:

$$\text{Mean } \overline{X} = \frac{1}{n} \sum_{i=1}^{n} X_i$$

Finding the sample means $\overline{X}_c$ and $\overline{X}_i$ of company and individual investors respectively difference is not enough. It may be due to the difference in the underlying population means μ_c and μ_i, or may be attributed to chance fluctuations alone. To solve this problem, one-sided hypotheses are stated: the null hypothesis H_0: $\mu_c = \mu_i$ and the alternatives hypothesis H_1: $\mu_c < \mu_i$ in measuring duration or H_1: $\mu_c > \mu_i$ in measuring rates of return. A test of hypothesis leads to a decision of accepting or rejecting the hypothesis under consideration. Several numerical measures are needed. First, their variance are calculated by the formula:

$$s_x^2 = \frac{1}{a-1} \sum_{i=1}^{a} n_i \left(\overline{X}_i - \overline{\overline{X}} \right)^2$$

But the variance cannot tell the whole story since samples with the same variance may still come from different populations. Thus the pooled variance is calculated as a chance fluctuation as follow:

$$s_p^2 = \frac{\sum_{i=1}^{a} \sum_{t=1}^{n_i} \left(X_{it} - \overline{X}_i \right)^2}{\sum_{i=1}^{a} \left(n_i - 1 \right)}$$

To examine the sample variance and their chance fluctuation, F-test modified by Sir Ronald Fisher is employed, that is, $\mathbf{F} = \frac{\mathbf{ns}_x^2}{\mathbf{s}_p^2}$. The greater the F ratio, the lesser the credibility that H_0 is true. The p-value (for probability value) is utilized to measure the probability in the tail of the F distribution beyond the observed value. Following the convention, 5% significant level is chosen. By comparing the p-values and the significant level, the null hypothesis is determined to be rejected or not.

Chapter 5

Empirical Findings

5.1 Hong Kong Property Market in 1991 - 1998

Before the empirical findings are presented, it must be acknowledged that the way we define a transaction and the duration between transactions may allocate more "weight" in later years. For example, in calculating the number of transactions in 1991 (that is the beginning year of this study period), only the buying and selling of the same premise in 1991 will be considered. In calculating the number of transactions in 1994, the premises bought in between 1991 and 1994, and sold in 1994, will all be considered as transactions in 1994. Clearly, this method artificially generates more transactions in later years. Similarly, in calculating the duration (holding period of a premise) in 1992, an investor bought a premise in 1991 or 1992 and then sold it in 1992. The longest duration is 2 years. (i.e. buy at 1, January 1991 and then sell at 31, December 1992). If calculating duration of transactions in 1998, the longest duration is 8 years. The average duration is calculated by taking average of all duration

recorded in that year. The later the year, the higher the number of transactions and duration should be. Obviously, this method introduces some biases in calculation. However, it should not be a problem of this research since the focus is on the "difference" in behavior of company and individual investors and the distortions described would fairly affect both types of investors.

Now we present some "basic facts" of the Hong Kong property market between 1991 and 1998. Figure 5.1 plots the number of transactions from 1991 to 1998. It shows that the number of transactions does not increase in the later year, which seems to suggest that our method may not be as distorting as it seems. In 1992 and 1995, the numbers of transactions are nearly the same as the previous year. In 1996 and 1997, the number of transactions increase in a relatively large percentage. The number of transactions in 1998 decrease dramatically although the data limitation[12] may affect the result.

Figure 5.1

---

[12] The study period is between January 1991 and November 1998.

Figure 5.2 plots the average duration from 1991 to 1998. Overall, the average duration increases in between 1991 and 1998.[13]

Figure 5.2

The distribution of average duration in 1991-98 period varies widely. In general, relatively greater number of transactions is transacted within half year to one year (see figure 5.3). Consistent with the previous findings, the average duration in earlier years is shorter than that in later year. In 1991, over 90% of transactions is located within the range of zero to half years. In 1992, over 60% of transactions is recorded between half years to one year which are longer than in 1991. Between 1993 and 1996, the peak of those curves move rightwards from the range of half years to one year to the range of two and a half years to three years. But in 1997, it is not difficult to find that more share of transaction

---

[13] In 1993, 1995 and 1998, the average duration respectively experiences a sudden increase which means that house owner would like to hold the property for a longer period before selling to the other. In 1997, the house owners would like to turn over their property at a shorter period of time and the average duration decreases in that year.

is marked back to the range of half year to one year. Nearly 20% of total number of transactions in 1998 has been held for more than five years and it is the greatest percentage among other years[14].

Figure 5.3

The distribution of the rates of return seems to be time-varying. Figure 5.4 shows the non-weighted rates of return from 1991 to 1998. The distribution of 1991 is fairly "abnormal". It may be due to the fact that the number of transactions in 1991 is very small and its average duration is also very short as only one year is used for counting the transaction. For example, a transaction in Whampoa Garden in 1991 earned 1.5 millions in only 6 days and a large number of transactions was traded within a month. In 1992, the rates of return is relatively large compared with later years. In between 1993 and 1998, investors in 1997 are able to earn a relatively large rates of return than other years. Noticeably, the average rate of return in 1998 is negative.

---

[14] The distribution of average duration in each year can be found in appendix E, figure E1 a-h.

Figure 5.4

Figure 5.6 shows the overall rates of return in all the years. Generally, about 30% of transactions is associated with 0% to 10% annual rates of return (see figure 5.5). Previously, it is mentioned that the extremely high rates of return are found in 1991. Actually, only about 20% of cases is presented in the range of over 50% rates of return while around 70% is in the range of 0% to 10%. Then, the abnormal finding of overall rates of return in 1991 is resulted by several extreme transactions. The rates of return in 1992 has a different picture. A relatively large percentage of transactions is rescued in the range of more than 50% earning so that the overall rates of return in 1992 are high. However, in 1993, most cases earn 0% to 10% and 11% to 20% leading to a sudden drop in that year. In 1994, most cases are associated with 11% to 30% and the average rates of return in the whole year increase. The distributions of 1995 and 1996 look similar and most transactions is recorded in the range of 0% to 10% rates of return. Since one-forth of cases transacted at a negative earning in 1995, the overall rates of return in 1995 are much lower than in 1996. The

turning points in 1997 and 1998 make another totally different scene. Transactions, which earned 11% to 20% or over 50% rates of return, associate with the highest value of relative frequency in 1997. In 1998, about 40% of transaction falls in the range of 0% to 10% rates of return and half of them earn negative rates of return. The overall rate of return in 1998 is, therefore, negative[15].

Figure 5.5

5.2 Comparison between Company and Individual Investors

In this chapter, comparison between company and individual investors on the issues of number of transactions, duration and rates of return will be made. For each of these items, we will analyse the data aggregated from different years, as well as from individual year. That is, we collect that data across different types and locations and examine how they evolve over time. Then we will go to more disaggregated data. We will examine whether company and individual investors

---

[15] The distribution of rates of return in each year can be found in appendix E, figure E2 a-h.

differ across properties of various types and locations. The details are mentioned in chapter 4.

5.2.1 Number of Transactions

Figure 5.6 shows that between 1991 and 1998, the relative shares of transactions of company investors vary. There are two peaks and three troughs in considering the company investors' share of the total transaction. In 1991, the first trough shows lesser investors traded under the name of company. But the small number of transactions in this year may bias the result. In 1992 to 1994, more people entered the private residential property market as company investors. In 1995, lesser company investors transacted in the market. Another peak located in 1997, but the share of company investors dropped dramatically in the next year.

Figure 5.6

Figures 5.7 a - c show the more disaggregated pictures of the share of transactions. Figure 5.7 a shows that low level and high level premises have

nearly the same share of transactions of company investors which are around 10% to 18%. The two distributions are very similar.

Figure 5.7 a

Figure 5.7 b shows that company investors consistently express more interest in large premises. In small and medium premises, the relative share of transaction of company investors is within the range of 10% to 15% while in large premises, the relative share varies in between 30% to 40%.

Figure 5.7 b

Figure 5.7 c shows different shares of transactions associated with company investors in different districts. Hong Kong can be broadly divided into 3 districts, which are Hong Kong Island, Kowloon and New Territories. All

three of them have a peak in 1997. However, company investors consistently contribute more in Hong Kong Island premises in relative terms. They constitute about 20% to 30% of the total transactions in Hong Kong Island while only about 10% to 20% in the other two districts.

Figure 5.7 c

To summarize, company investors seem to be indifferent between high or low level premises. However, they contribute more in large premises or premises in Hong Kong Island in relative terms.

5.2.2 Duration

When comparing the average duration between company and individual investors from 1991 to 1998, different patterns are found in different categories. Figure 5.8 presents the aggregated data of average duration. From 1991 to 1996, the average duration of company and individual investors are very similar. However, company investors hold properties for significantly shorter time than

individual investors since 1997. It will be interesting to examine whether such patterns persist if we could have access to later year data. The more disaggregated counterparts seem to display similar pattern[16].

Figure 5.8

Hypothesis Testing and Analysis on Variance (ANOVA) of Duration

Now, we turn to more systematic comparison of the holding periods of two types of investors. The means of company investors are smaller than the individual investors, which denote that the company investors transact more frequently than individual investors[17].

The means difference of two types of investors may come from chance fluctuation in the same population. In order to check whether the difference in

---

[16] The comparison on duration between company and individual investors in different categories can be found in appendix E, figure E3 a-g and appendix F, table F1.

[17] Appendix F, table F2 displays the means and other statistics on duration of all aggregated data together with the data.

mean is significant or not, we test the equal-mean hypothesis formally. With setting the null hypothesis H_0: $\mu_c = \mu_i$, F-test is employed to determine whether the null hypothesis can be rejected. The detailed calculation is shown in chapter 4 and the results are adjusted for different sample size and mean. Table 5.1 shows the F-ratio and p-value of duration in each category. In each column, the F-value lies beyond $F_{0.001} = 1.32$, and the p-value is smaller than 0.001. This means that if H_0 were true, there is less than 0.1% chance of getting sample means that differ so much. Accordingly, H_0 is rejected. It is concluded that two types of investors are different and their means of duration are significant.

Table 5.1

The Distribution of Duration by Class with Aggregated Data

We have shown that the means duration of the two types of investors are very different. Hence, it is interesting to examine in more details about the distribution of the duration for different types of investors. Aggregating across years, figure 5.9 displays the distribution of duration for both company and

individual investors. The mode of average duration of company investors is in the range of zero to half a year and that of individual investors is in half year to one year. Thus, company investors most frequently transact in a shorter period of time than individual investors. For both types of investors, the relative frequency decreases with the duration of property holding.

Figure 5.9

The overall pattern for each individual year is still that the company investors hold properties for the company investors hold properties for much shorter duration than the individual counterparts[18].

The Distribution of Duration by Class with Different Categories

The pattern of distribution in each category is more or less the same as the pattern in aggregated data analysis[19].

---

[18] The comparison on duration between company and individual investors by class in each year can be found in appendix E, figure E4 a - h.

[19] The comparison on duration by class in different categories can be found in appendix E, figure E5 a - g.

For individual year in each category, it is similar to the aggregated data analysis. Nearly all the modes for average duration of company investors from 1992 to 1996 are located at the range of half year to one year while that of individual investors are recorded more evenly in different ranges[20].

In most of the categories, the company investors with a higher relative frequency than individual investors in the ranges of zero to half a year and half a year to one year. With exemption in large premises and premises in New Territories, the relative frequency of company investors is greater than individual investors in the large average duration such as the range of four and half a year to five years.

The patterns of distribution in each category are more or less the same as the patterns in aggregated data analysis. Single-peaked pattern is mainly scattered in 1991 to 1993 and 1997. The other years show a double-peaked pattern or even multi-peaked pattern.

---

[20] The comparison on duration by class in different categories in each year can be found in appendix E, figure E6 a - g.

5.2.3 Rates of return

Figure 5.10 presents the annual distribution of rates of return between company and individual investors of aggregated data[21]. Except in 1995 and 1998, company investors on average have higher rates of return than individual investors in the aggregation. In fact, in 1996 and 1997, company investors gained a higher rates of return than individual investors in all disaggregated data and the difference was especially greater in the categories of high level premises, small and medium premises and premises in New Territories. In sum, in the aggregated as well as more disaggregated data, company investors "earn more" than individual investors in most cases.

Figure 5.10

Hypothesis Testing and Analysis on Variance (ANOVA) of Rates of Return

With the differences in the means of rates of return made by company and individual investors in the aggregated data and disaggregated data, hypothesis

---

[21] The comparison on rates of return between company and individual investors with different categories can be found in appendix E, figure E7 a – g and appendix F, table F3.

testing and ANOVA are needed to ensure two samples come from different populations. In the aggregated data, the mean of rates of return made by company investors of 40.63% is much more than that made by individual investors of 24.17%. In disaggregated data, the means made by company investors ranging from 26.95% to 53.29% are also greater than the means made by individual investors ranging from 20.80% to 33.32% for all categories.

To check whether such difference between two types of investors comes from the fluctuation of the same population by chance or just comes from two totally different populations, hypothesis testing and ANOVA are employed. Same as previous section, null hypothesis of H_0: $\mu_c = \mu_i$ and alternative hypothesis of H_1: $\mu_c > \mu_i$ are tested by F-test of one way ANOVA. The F ratio and p-values are summarized in the table 5.2[22]. The aggregated data provides a significant result in proving the null hypothesis is rejected. In disaggregated data, three categories with p-value of less than 0.001 and the other three categories with p-value of less than 0.01 are proved to be significant and two samples are based on different populations. However, only one category, that is, large

---

[22] Appendix F, table F4 displays the means and other statistics on rates of return of all aggregated data together with the data.

premises cannot pass through the F-test and the p-value is over 0.25 which means the credibility level for H_0 is sufficiently high that H_0 cannot be rejected. The difference in sample means of company and individual investors in large premises may well have occurred under the same population.

Table 5.2

The Distribution of Rates of return by Class with Aggregated Data

Figure 5.11 displays the distribution for company and individual investors by grouping the rates of return data of different years together. The mode of both company and individual investors is at the range of 0% to 10%. In the ranges of higher rates of return and lower rates of return, the relative frequency of company investors will be higher than that of individual investors. In usual practice, company investors purchase premises for speculation and sold out for a very short period of time. When the price of residential properties frustrates frequently, company investors will experience a huge gain or loss.

Figure 5.11

The overall patterns for each individual year are similar that company investors most frequently transacted in two extremes of higher rates of return and lower rates of return than individual counterparts[23].

The Distribution of Rates of return by Class with Different Categories

Similar to the aggregated data analysis, the relative frequency of company investors is higher than that of individual investors mostly in the ranges of two extreme sides[24]. This shows that greater proportion of company investors in large premises and premises in Hong Kong Island can gain high rates of return.

For the pattern of disaggregated data in individual year, the comparison in mode is similar as the previous analysis. The modes in most of the year of

[23] The company on rates of return between company and individual investors by class in each year can be found in appendix E, figure E8 a – h.

[24] The comparison on rates of return by class in different categories can be found in appendix E, figure E9 a - g.

different categories are also recorded in the range of 0% to 10%. But the mode in the categories of large premises and premises in Hong Kong Island are located at a high range of more than 50% rates of return[25].

In sum, the pattern of disaggregated data in individual year is similar as pervious studies and it is found that transactions made by company investors distributed in a great fluctuation. Company investors have greater probability to involve in transactions gained with huge amount of return and at the same time lost very much.

[25] The comparison on rates of return by class in different categories in each year can be found in appendix E, figure E10 a - g.

Chapter 6

Historical Remark

In this chapter, we attempt to put our findings in the historical context and relate to the findings of other authors. After comparing the number of transactions, duration and rates of return between company and individual investors in the aggregated data and disaggregated data from different aspects, the following stylized facts are the main findings in this thesis.

The share of transaction made by company investors varies from 1991 to 1998 and such variations are affected by soaring property price, government policy and economic environment. Given relatively stable new demand formation and new supply during 1990-1993 period, property price soared with the cause of low interest rate. The real mortgage rate remained negative until March 1994 when US raised its interest rate. The negative mortgage rate made housing investment extremely profitable. Investors' demand for housing

property soared, pushing up prices. (Fu 1996) Meanwhile, the share of transactions associated by company investors was increasing in this period.

With soaring private housing prices, politicians urged the government to intervene. In response, the Governor established an Anti-Speculation Task Force in March 1994 to cool down the housing market. The most important measure was that buyers could not resell the flats until they had been completed and delivered. Associated with the positive mortgage rate, lesser share of transaction was made by company investors in 1995.

But the policy seemed to be losing its effectiveness in 1996. More and more speculators decided to use a company as the vehicle for the transaction. Since there was no law prohibiting the sale of companies, speculators could avoid the legal restriction imposed by the policy. The share of transactions associated by company investors increased from 1996 to 1997.

The drastic property crash was caused by the outburst of the financial turmoil in Asia. In particular, Hong Kong Monetary Authority to counteract attacks from the speculators and then increased interest rates. Interest rate

charged on new mortgages increased incrementally from 9% in July 1997 to 11% in June 1998. Further, banks were very cautions or even unwilling to grant mortgage loans in the first half of 1998. Also, Chiu (1999) suggests that potential home purchasers were unwilling to enter into the market for the obvious reasons of the dismal economic outlook, salary cuts, job insecurity, tight liquidity of banks and rising interest rates. Property purchase is no longer as a hedge against inflation but rather it turns into negative equity. With the small profit or even loss, speculators had almost left the market. So that the share of transaction made by company investors decreased dramatically.

Company investors are properly the speculators in property market. Fu (1996) in *The Other Hong Kong Report 1995* states that "The pre-sale and re-sale of unfinished housing flats (advanced property) and short-term re-sale of existing flats are considered as speculation." In calculating of mean of duration and analysing the distributions of duration in aggregated data and in most of the disaggregated data, company investors seem to be more frequently traded in short-term transaction than individual. Moreover, they can take advantages of limited liability in purchasing advanced property with lower risk and the tax

reduction in trading existing property. Company investors are usually regarded as speculators in property market. (Lui, 1998)

As a speculator, the high-risk investment should be compensated by high rates of return. Speculators perform the important function of spreading risks, which otherwise have to be borne by developers and consumers. (Wong and Staley, 1993 and Liu, 1998) Speculators specialize in having certain information and their behavior conveyed such information to developers for adjusting the production plan and to consumers for the market price anticipation. In the empirical findings, company investors earned higher profit margins in average and they were more frequently engaged in transaction with higher rates of return no matter in aggregated data and in disaggregated data. With facing higher risk and possessing more information, company investors are compensated with higher rates of return and it is another evidence to show that company investors are the speculators in property market.

Chapter 7

Conclusion

Hong Kong economy is affected by property market in great extent. The home ownership rate is about 53%[26] and it means that the political pressure to inflate or suppress the relative price of housing would be approximately equal. The property price fluctuations arise a great public concern. (Lau, 1992 and Wong and Staley, 1993) Company investors are typically blamed to be the speculators who boom the property price.

The empirical findings in this thesis show that the behavior of company and individual investors are different in number of transactions, duration and rates of return. Although company investors involve around 15% of total transaction, company investors in average earn greater rates of return and hold the premises in a shorter period of time than that of individual investors.

---

[26] See South China Morning Post, 18 February 2000.

Typical company investors frequently transact in a shorter periods of time than individual investors. For the distribution of rates of return between company and individual investors, the relative frequency of company investors will be higher than that of individual investors in the ranges of higher rates of return and lower rates of return. These conclude that company investors invest in a more frequent transaction but their earnings vary greatly.

This thesis may not capture the whole picture for various reasons. First, the study period is limited to 1991-1998 due to data unavailability. Second, because of the time limitation, only 46 most frequently traded estates are taken into consideration. Some categories only have a few estates. For example, only four estates are grouped as large premises. Third, we cannot trace the identity of investor. For example, the director of a company may also be one of the individual investors in the market and/or the director of another company. This may mislead the empirical result when comparing the difference between two types of investors. If possible, a more complete and updated data set can improve the accuracy of analysis.

For future research directions, different ways in comparing the behaviors of two types of investors are employed. On top of comparing the number of transactions, duration and rates of return, the ways the two types of investors reacting to the change in GDP growth, interest rate, general wage level, etc are left to be explored.

Table 5.1: Summary of F-ratio and P-value of Duration in Hypothesis Testing

Category	F-ratio
Aggregate Data	283.40 *
Low Level Premises	99.56 *
High Level Premises	141.98 *
Small & Medium Premises	132.10 *
Large Premises	27.43 *
Hong Kong Islands	206.74 *
Kowloon	110.71 *
New Territories	42.99 *

Note: * represents p-value <0.001

Table 5.2: Summary of F-ratio and P-value of Rates of Return in Hypothesis Testing

Category	F-ratio
Aggregate Data	11.40 *
Low Level Premises	218.51 *
High Level Premises	259.11 *
Small & Medium Premises	11.64 *
Large Premises	0.36 ***
Hong Kong Islands	7.66 **
Kowloon	8.38 **
New Territories	5.54 **

Note: * represents p-value < 0.001

** represents p-value < 0.01

*** represents p-value > 0.25

Figure 1.1: Stock of Different Types of Real Estate in Hong Kong (m^2)

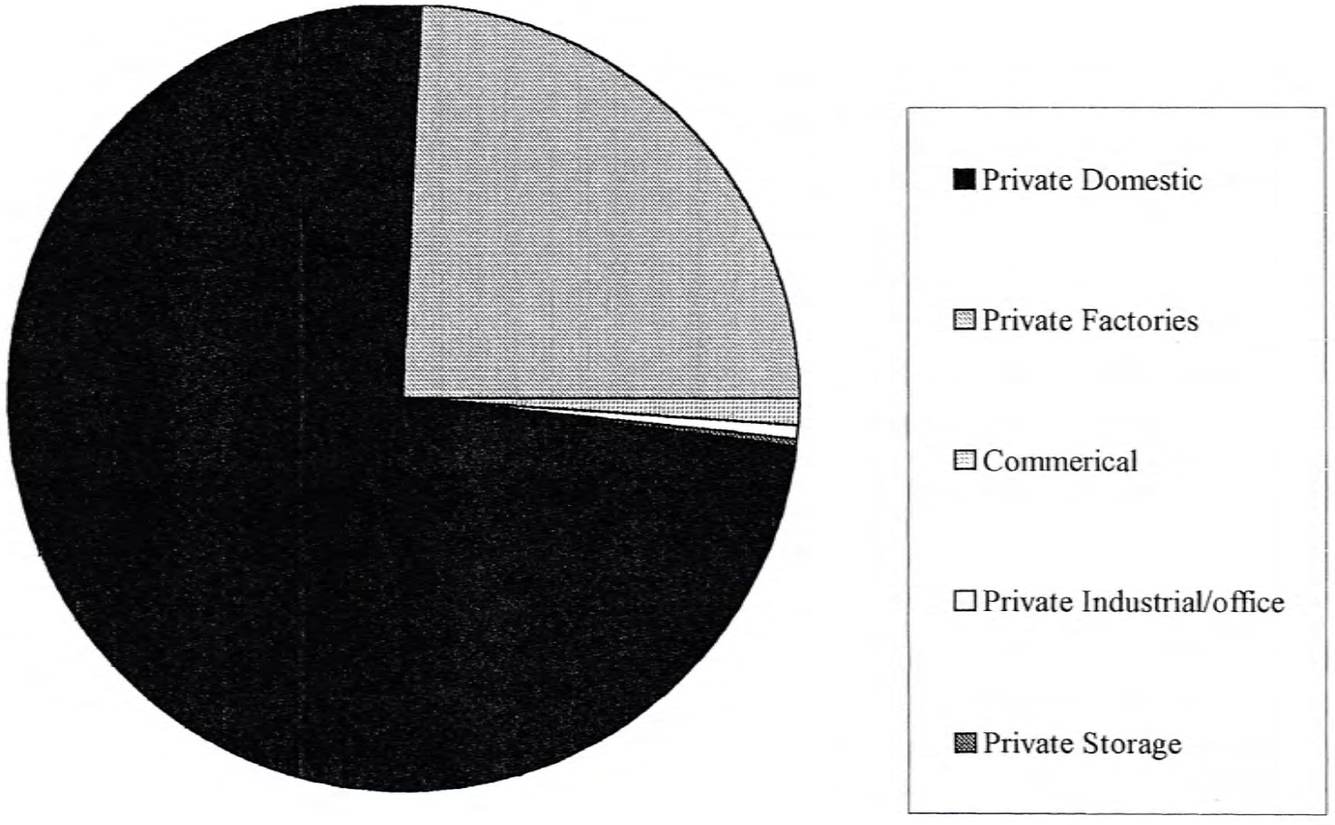


Figure 1.2: Share of Transactions in Hong Kong and US Property Markets: Company Investors

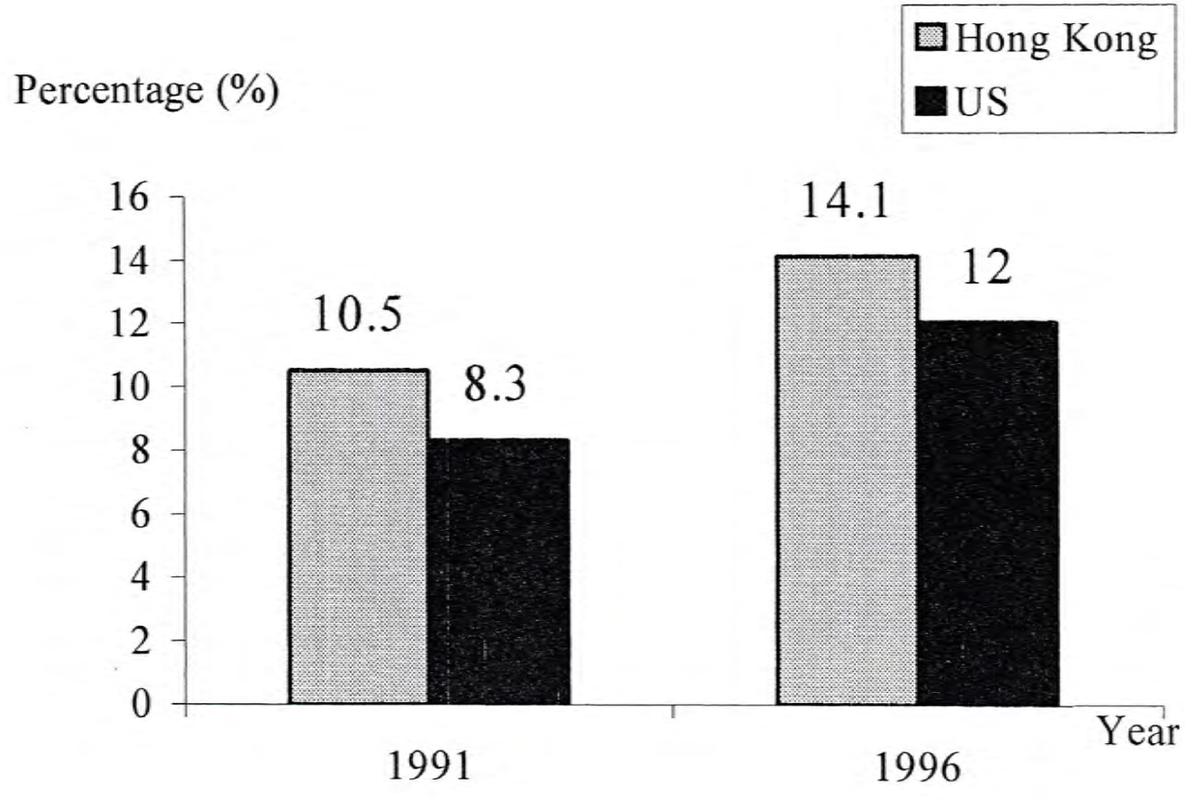


Figure 5.1: Number of Transactions (1991-1998)

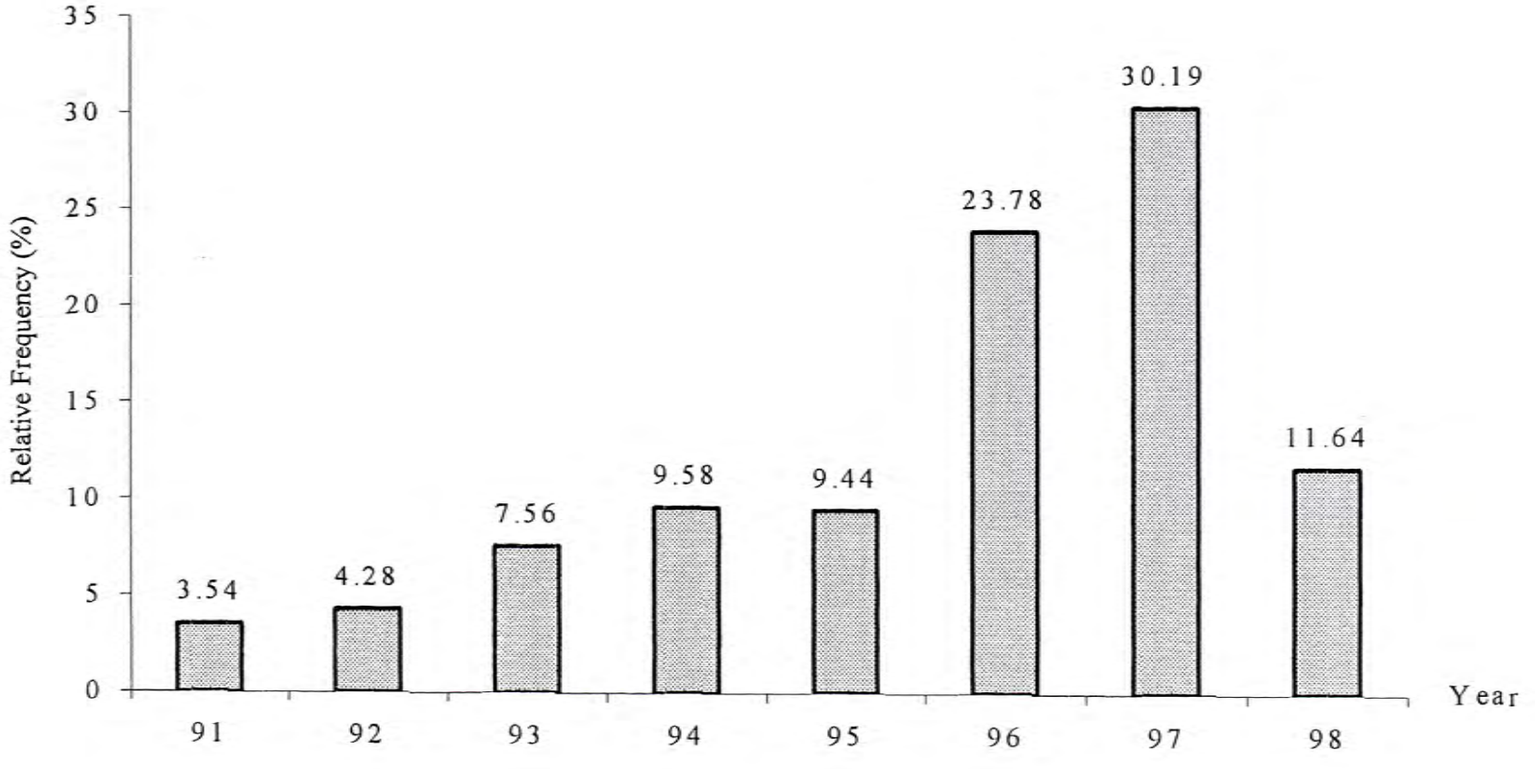


Figure 5.2: Average Duration (1991-1998)

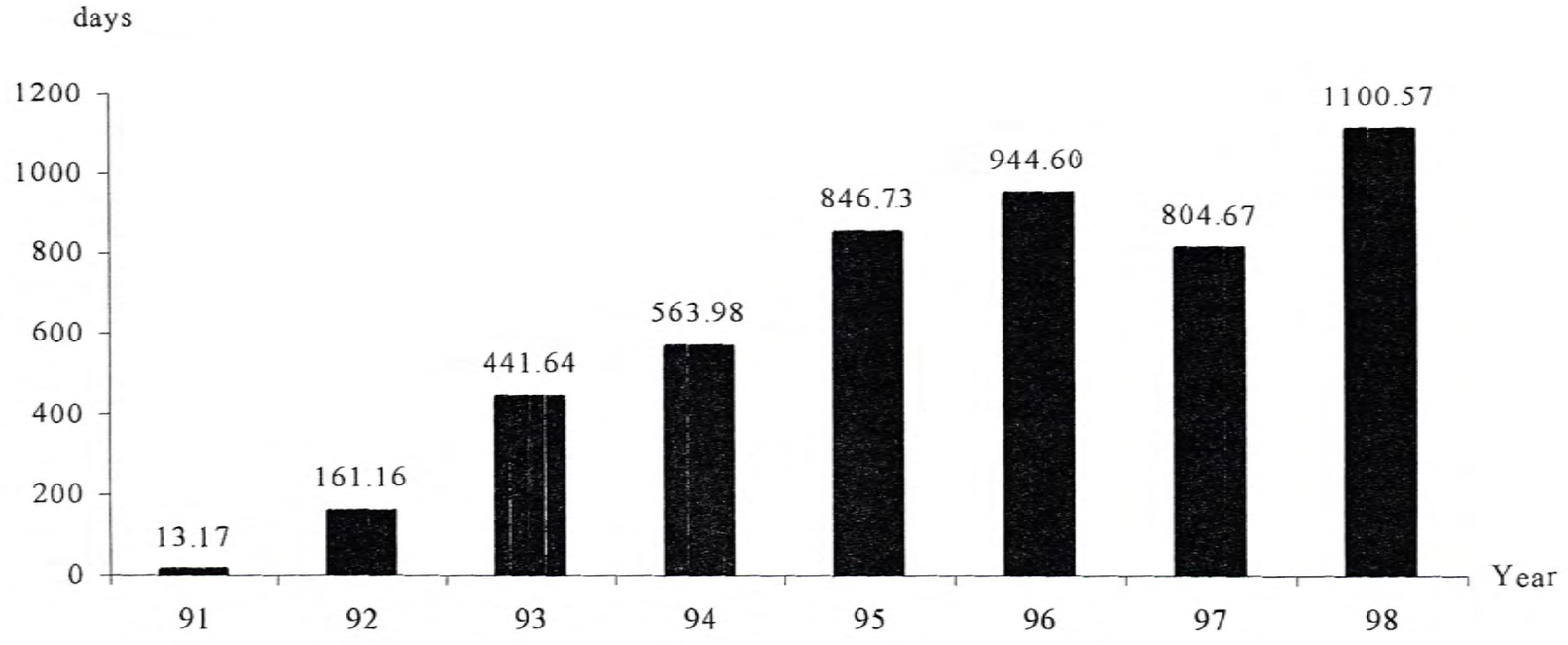


Figure 5.3: Distribution of Average Duration (1991-1998)

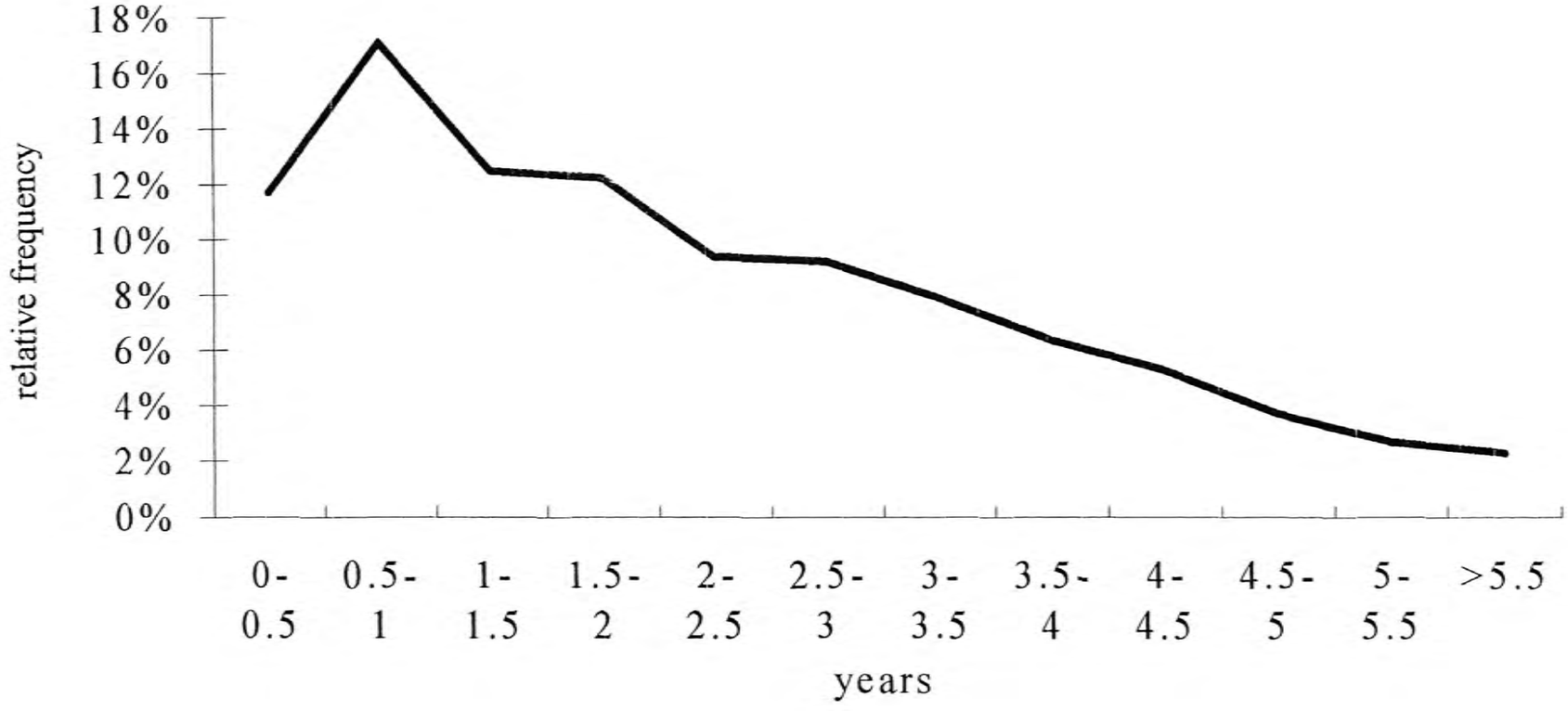


Figure 5.4: Rates of Return (1991-1998)

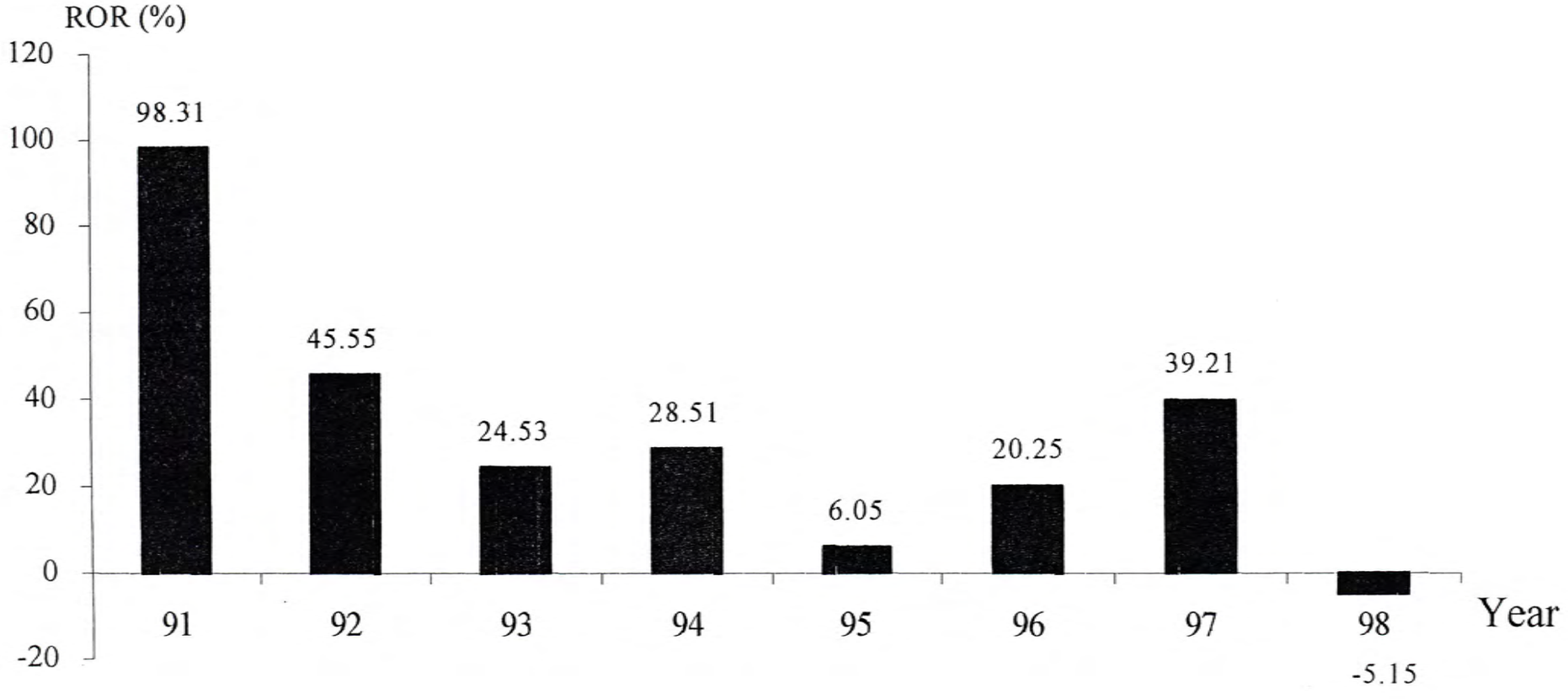


Figure 5.5: Distribution of Rates of Return (1991-1998)

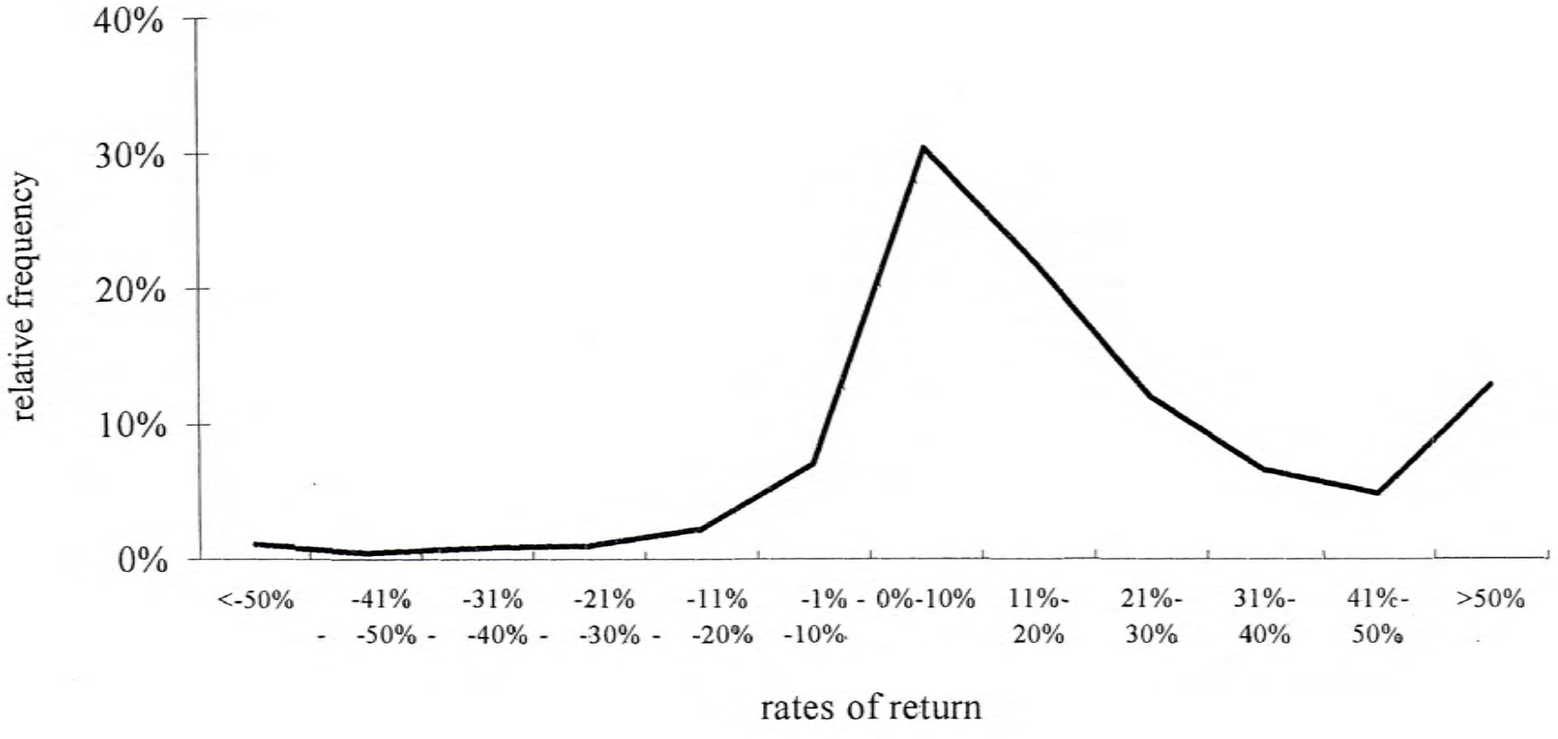


Figure 5.6: Share of Transactions : Company Investors (1991 - 1998)

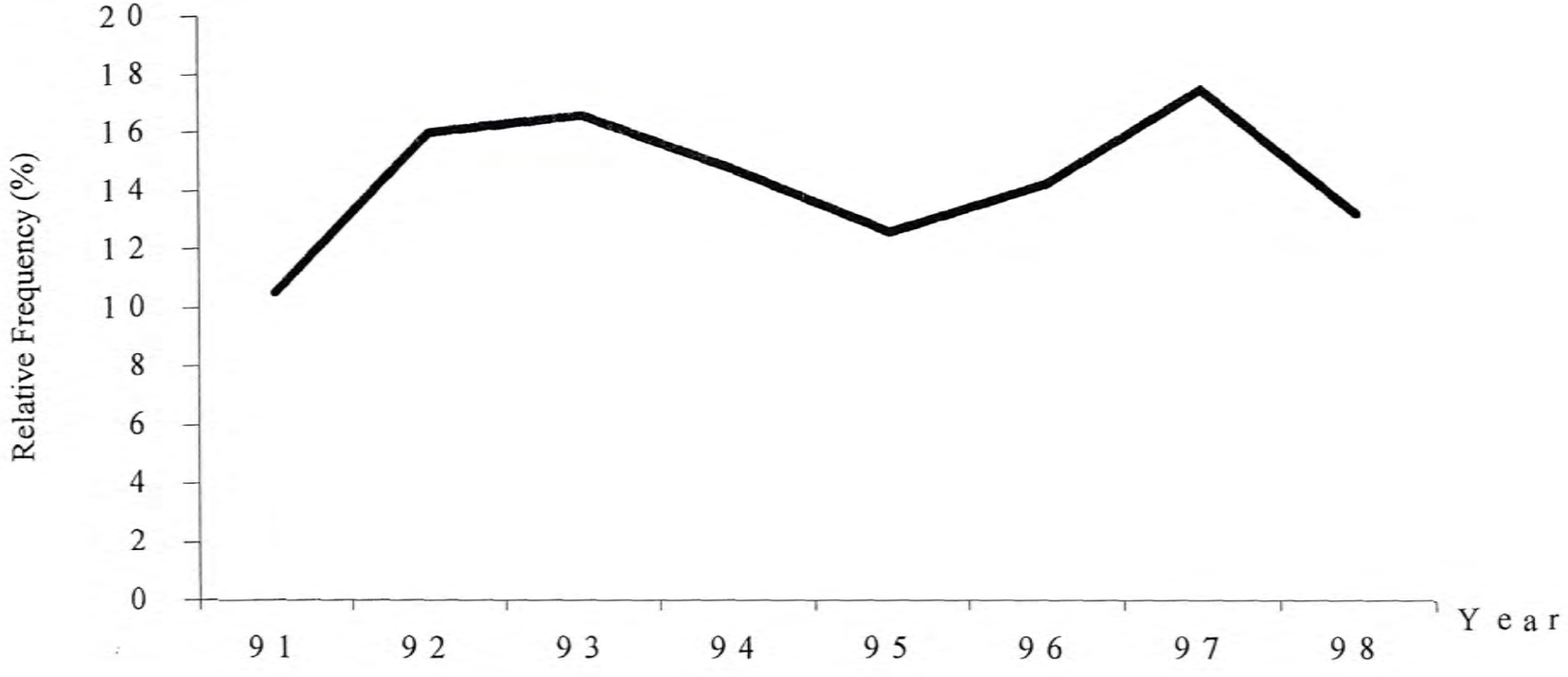
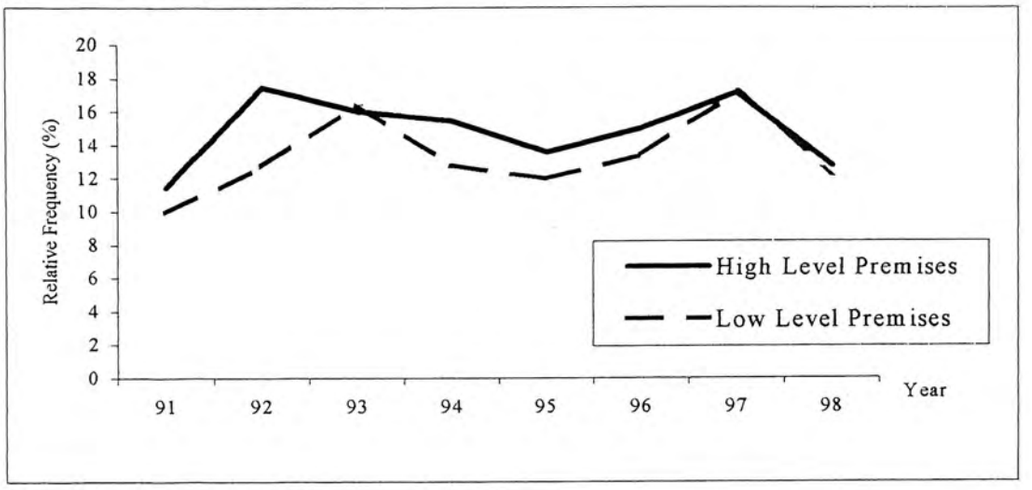
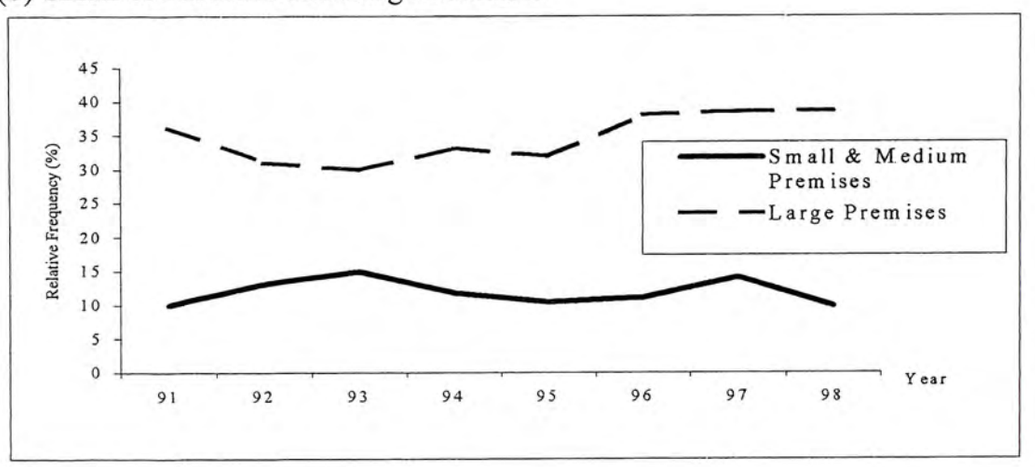


Figure 5.7 a - c: Share of Transactions: Company Investors in Different Categories (1991-1998)

(a) Low and High Level Premises



(b) Small & Medium and Large Premises



(c) Hong Kong Island, Kowloon and New Territories

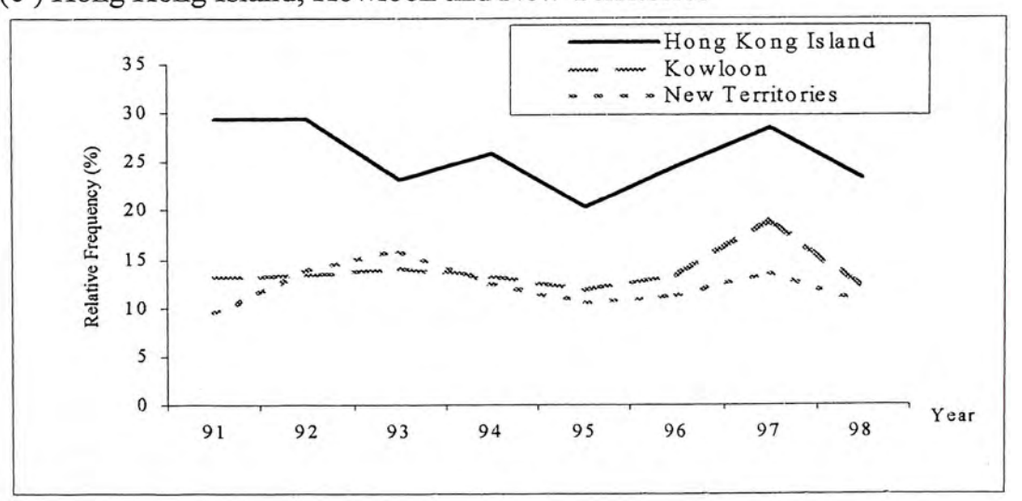


Figure 5.8: Comparison on Duration between Company Investors and Individual Investors (1991-1998)

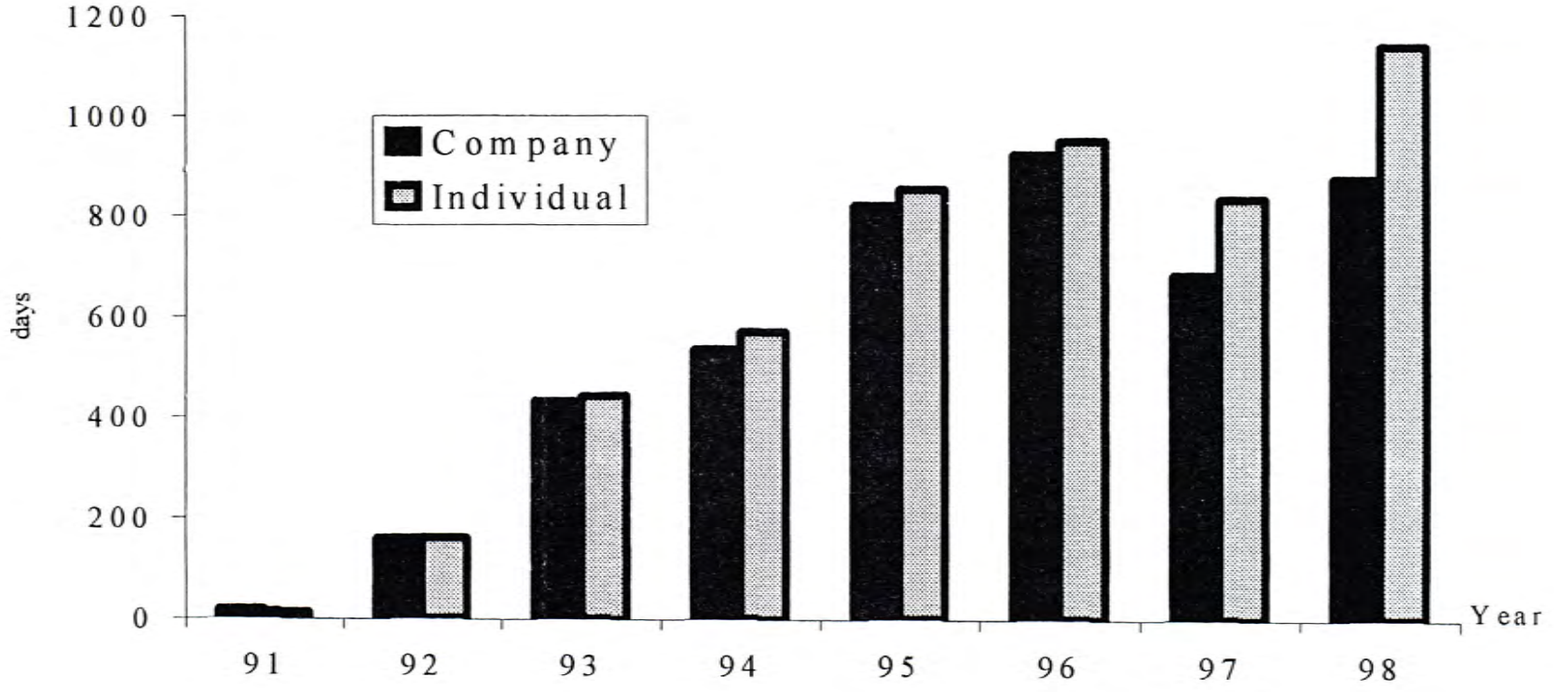


Figure 5.9: Comparison on Duration between Company and Individual Investors by Class (1991-1998)

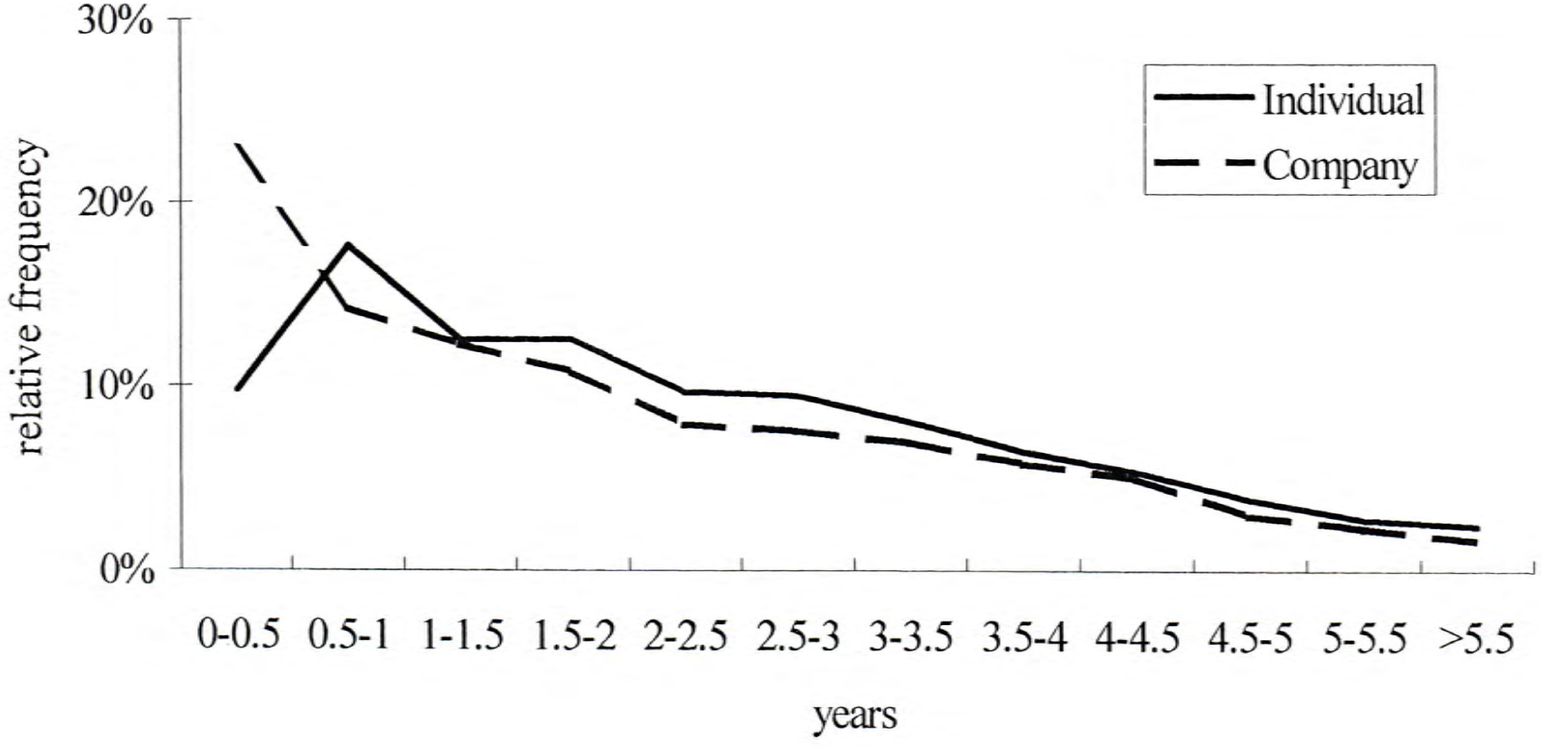


Figure 5.10: Comparison on Rates of Return between Company and Individual Investors (1991-1998)

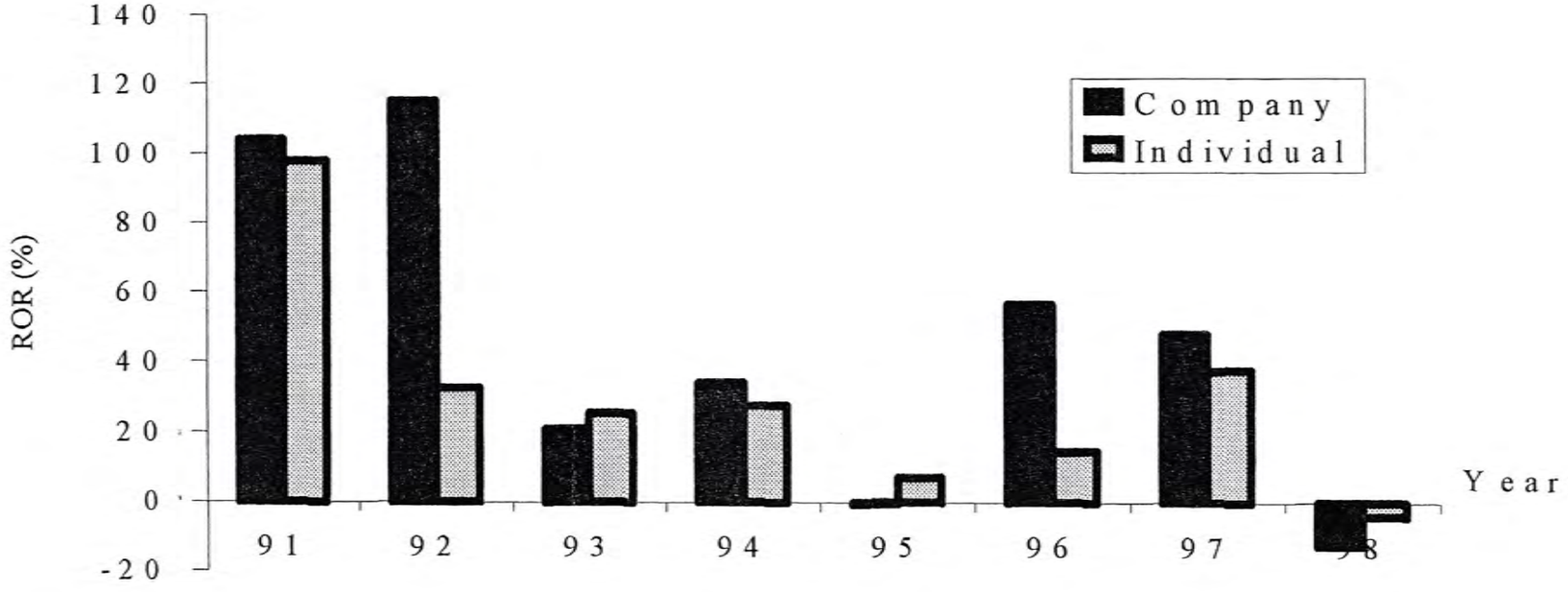
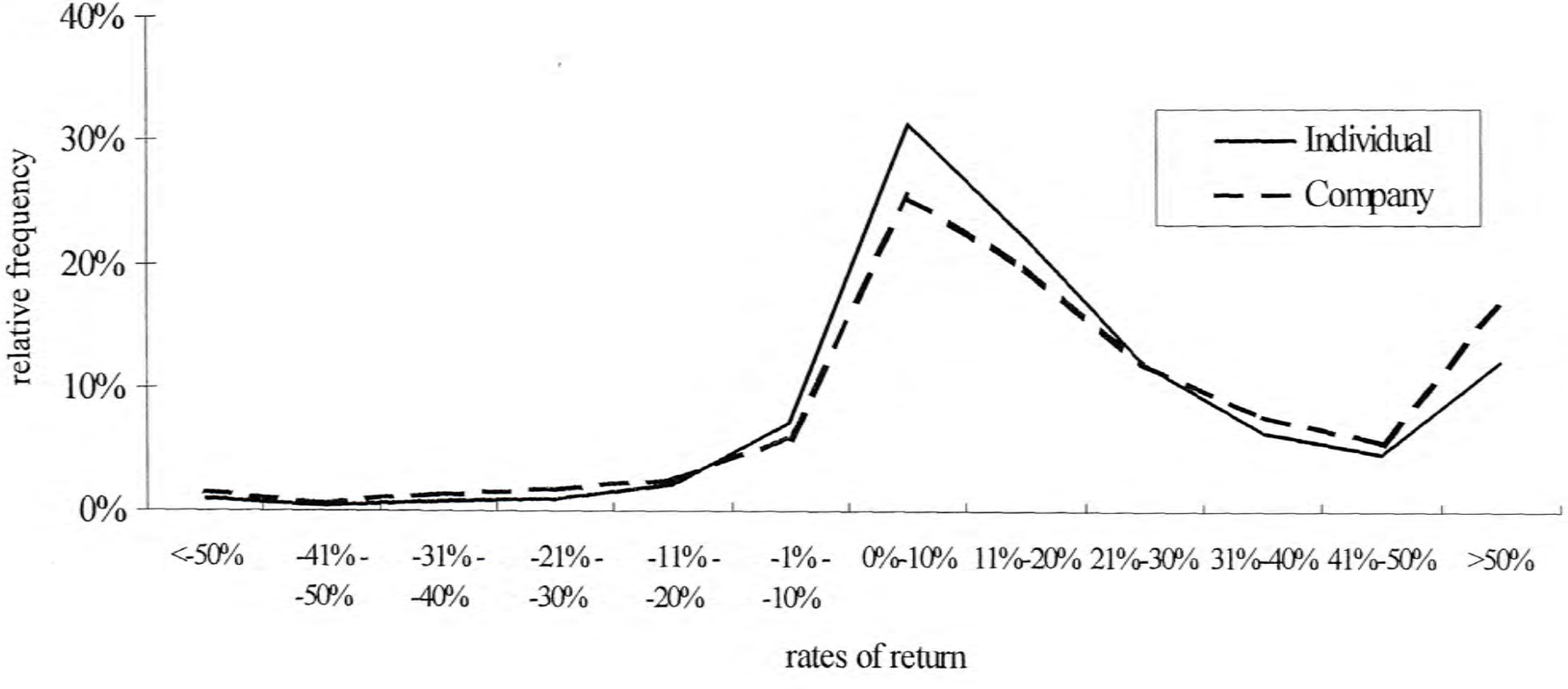


Figure 5.11: Comparison on Rates of Return between Company and Individual Investors by Class (1991-1998)



Appendix A

Stamp Duty on Sale of Immovable Property in Hong Kong

Amount or Value of the consideration Rate		Rate				
Exceeds	Does not exceed	1988-1993	1994-1995	1996	1997-1998	1999-2000
	$250,000	$20	$100	$100	$100	$100
$250,000	$500,000	0.75%	$100	$100	$100	$100
$500,000	$750,000	1.50%	0.75%	$100	$100	$100
$750,000	$1,000,000	1.50%	0.75%	0.75%	$100	$100
$1,000,000	$1,500,000	2.00%	1.50%	0.75%	0.75%	0.75%
$1,500,000	$2,000,000	2.75%	1.50%	1.50%	0.75%	0.75%
$2,000,000	$2,500,000	2.75%	2.00%	1.50%	1.50%	1.50%
$2,500,000	$3,000,000	2.75%	2.00%	2.00%	1.50%	1.50%
$3,000,000	$3,500,000	2.75%	2.75%	2.00%	2.00%	2.25%
$3,500,000	$4,000,000	2.75%	2.75%	2.75%	2.00%	2.25%
$4,000,000	$5,000,000	2.75%	2.75%	2.75%	2.75%	3.00%
$5,000,000	$6,000,000	2.75%	2.75%	2.75%	2.75%	3.00%
$6,000,000		2.75%	2.75%	2.75%	2.75%	3.75%

Note: Reproduce from *The Budget*, various issues.

Appendix B

Stamp Duty on Transfer of Hong Kong Stock

Nature of Document	Rate					
	1988 -1990	1991	1992	1993 - 1997	1998- 1999	2000
Transfer operating as a voluntary disposition inter vivos	$5 + 0.6%	$5 + 0.5%	$5 + 0.4%	$5 + 0.3%	$5 + 0.25%	$5 + 0.225%
Transfer of any other kind	$5					

Note: Reproduce from *The Budget*, various issues.

Appendix C

46 Most Frequently Transacted Estates
(suggested by Economic Property Research Centre of Economic Times)

Hong Kong Islands	Kowloon	New Territories and Islands
Baguio Villa**	Amoy Garden	Belvedere Garden
Beverly Hill*	Beacon Heights**	City One Shatin
Chi Fu Fa Yuen	Laguna City	Discovery Bay
City Garden**	Mei Foo Sun Chuen**	Fairview Park**
Dynasty Court*	Parc Oasis	Fanling Centre
Heung Fa Chuen	Sceneway Garden	Hong Kong Gold Coast
Hong Kong Parkview*	Telford Garden	Kingswood Villa
Kornhill	Village Garden**	Luk Yeung Sun Chuen
Lei King Wan	Whampoa Garden	Marina Garden
Pacific Palisades**		Miami Barch Towers
Parkvale		New Town Plaza
Pokfulam Garden**		Palm Springs*
Taikoo Shing**		Rivera Garden
Westlands Court		Sea Crest Villa
		Serenity Park
		Sheung Shui Centre
		South Horizons
		Sun Tuen Mun Centre
		Sunshine City
		Tuen Mun Town Plaza
		Uptown Plaza
		Villa Athena
		Wonderland Villas

*** Estates consist of Large Type of Premises only**

**** Estates consist of both Small & Medium and Large Type of Premises**

Appendix D

Macro Program

```
Sub Tryc()

'Extract and order the useful data

'Rename and add a sheet

    ActiveSheet.Select
    ActiveSheet.name = "Raw"
    Sheets("Raw").Select
    Sheets.Add
    ActiveSheet.Select
    ActiveSheet.name = "Result"

    Cells.Select
    Selection.Columns.AutoFit

Sheets("Raw").Select
Range("A1").Select
ActiveCell.FormulaR1C1 = "***"

a = 1
i = 12
j = 3

For a = 1 To 400

For b = 1 To 7

Sheets("Raw").Select
Cells(i + 4, 3).Copy
Sheets("Result").Select
Cells(j, 9).Select
```

```
ActiveSheet.Paste

Sheets("Raw").Select
Cells(i + 5, 3).Copy
Sheets("Result").Select
Cells(j, 10).Select
ActiveSheet.Paste

Sheets("Raw").Select
Cells(i, 1).Copy
Sheets("Result").Select
Cells(j, 8).Select
ActiveSheet.Paste

i = i + 7
j = j + 1

Next b
i = i + 11
Next a

    Sheets("Result").Select
    Range("I2").Select
    ActiveCell.FormulaR1C1 = "Buyer"

  Sheets("Result").Select

    Range("J2").Select
    ActiveCell.FormulaR1C1 = "Seller"


    Rows("1:2").Select
    Selection.Font.Bold = True

    Range("I1").Select
    Selection.Font.Bold = True

'divide in different way
```

```
    Sheets("Raw").Select
    Columns("D:E").Select
    Selection.Insert Shift:=xlToRight
    Columns("C:C").Select
    Selection.TextToColumns Destination:=Range("C1"),
DataType:=xlFixedWidth, _
        FieldInfo:=Array(Array(0, 1), Array(4, 1), Array(9, 1))

    Columns("H:H").Select
    Selection.Insert Shift:=xlToRight
    Columns("G:G").Select
    Selection.TextToColumns Destination:=Range("G1"),
DataType:=xlFixedWidth, _
        FieldInfo:=Array(Array(0, 1), Array(3, 1))
    Range("A1").Select


'Copy useful data to the sheet named "Result"

a = 1
i = 13
j = 3

For a = 1 To 400
For b = 1 To 7

Sheets("Raw").Select
Cells(i + 1, 1).Copy
Sheets("Result").Select
Cells(j, 1).Select
ActiveSheet.Paste

Sheets("Raw").Select
Cells(i, 1).Copy
Sheets("Result").Select
Cells(j, 2).Select
ActiveSheet.Paste
```

```
Sheets("Raw").Select
Cells(i - 1, 3).Copy
Sheets("Result").Select
Cells(j, 3).Select
ActiveSheet.Paste
Sheets("Raw").Select
Cells(i - 1, 5).Copy
Sheets("Result").Select
Cells(j, 4).Select
ActiveSheet.Paste

Sheets("Raw").Select
Cells(i - 1, 6).Copy
Sheets("Result").Select
Cells(j, 5).Select
ActiveSheet.Paste

Sheets("Raw").Select
Cells(i - 1, 7).Copy
Sheets("Result").Select
Cells(j, 6).Select
ActiveSheet.Paste

i = i + 7
j = j + 1

Next b

i = i + 11

Next a


'Put Headings and Format the sheet "Result"

    Sheets("Result").Select
```

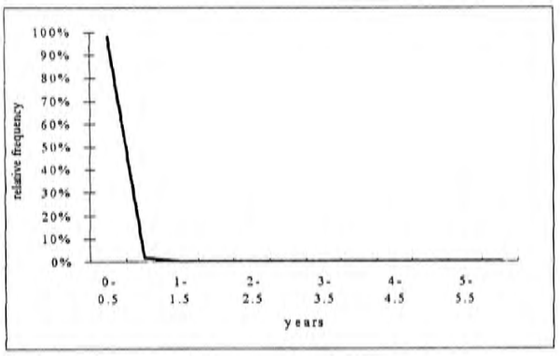
```
    Range("A2").Select
    ActiveCell.FormulaR1C1 = "Trans. Day"

    Range("B2").Select
    ActiveCell.FormulaR1C1 = "Del. Day"

    Range("C2").Select
    ActiveCell.FormulaR1C1 = "Floor"

    Range("D2").Select
    ActiveCell.FormulaR1C1 = "Flat"

    Range("E2").Select
    ActiveCell.FormulaR1C1 = "$"

    Range("F2").Select
    ActiveCell.FormulaR1C1 = "ft"


    Range("G2").Select
    ActiveCell.FormulaR1C1 = "$/ft"


    Range("G3").Select
    ActiveCell.FormulaR1C1 = "=RC[-2]*1000000/RC[-1]"

  Cells.Select
  Selection.Columns.AutoFit


    Rows("1:2").Select
    Selection.Font.Bold = True

    Range("A1").Select
    Selection.Font.Bold = True

'Replace missing data from the sheet "Result"
```

```
    Cells.Replace What:="1/F", Replacement:="1", LookAt:=xlWhole, _
        SearchOrder:=xlByRows, MatchCase:=False, MatchByte:=False

.....

    Cells.Replace What:="lat A", Replacement:="A", LookAt:=xlWhole, _
        SearchOrder:=xlByRows, MatchCase:=False, MatchByte:=False

.....

    Cells.Replace What:="Flat A", Replacement:="A", LookAt:=xlWhole, _
        SearchOrder:=xlByRows, MatchCase:=False, MatchByte:=False
.....

    Range("E3").Select
    Application.CutCopyMode = False
    Selection.NumberFormatLocal = "0.00"
    Selection.Copy
    Range("E3:E250").Select
    Selection.PasteSpecial Paste:=xlFormats, Operation:=xlNone,
SkipBlanks:= _
        False, Transpose:=False
    Application.CutCopyMode = False

    Range("G3").Select
    Application.CutCopyMode = False
    Selection.NumberFormatLocal = "0"


End Sub
```

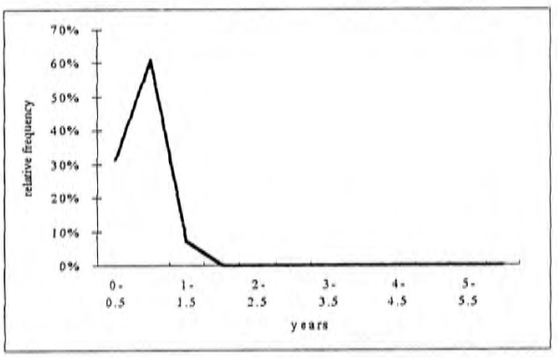
Appendix E

Figure E1 a - h: Distribution of Average Duration in Each Year (1991-1998)

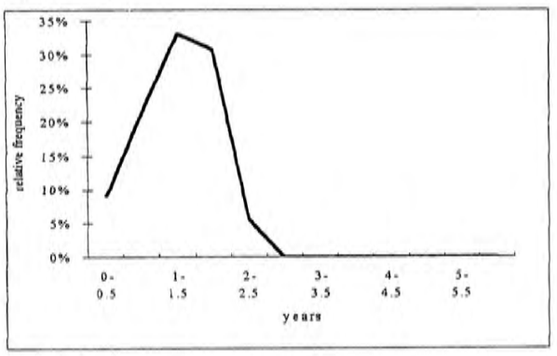
(a) 1991



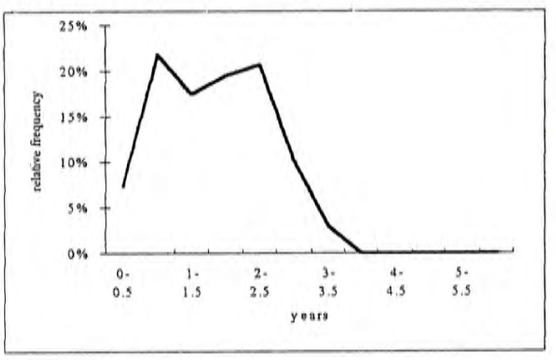
(b) 1992



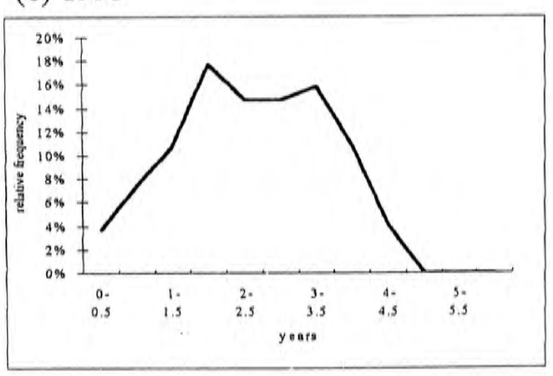
(c) 1993



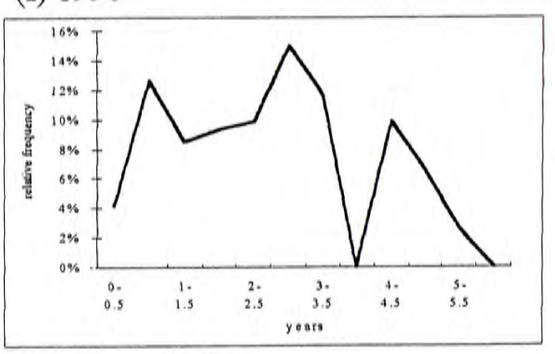
(d) 1994



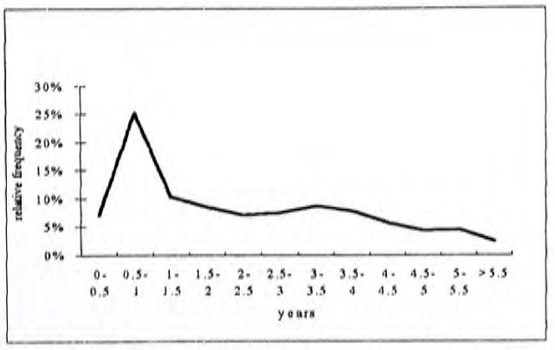
(e) 1995



(f) 1996



(g) 1997



(h) 1998

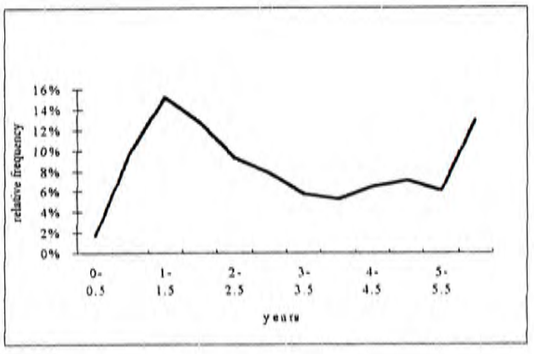
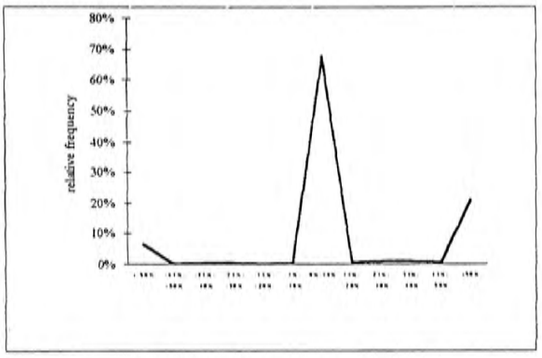


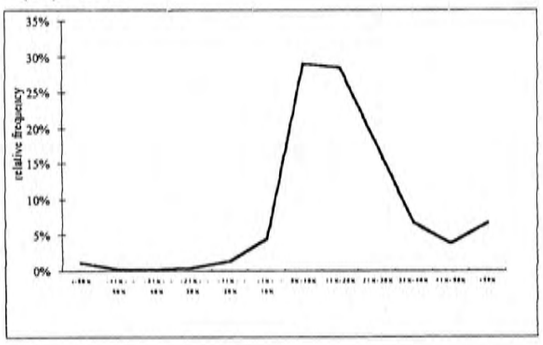
Figure E2 a - h: Distribution of Rates of Return in Each Year (1991-1998)

(a) 1991

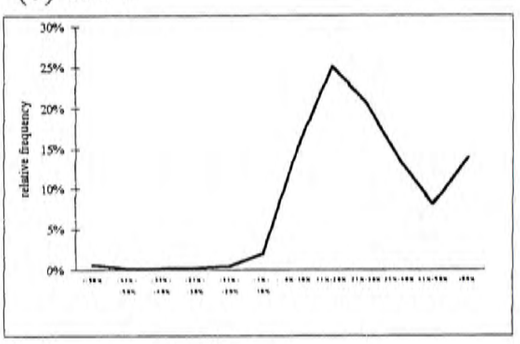


(b) 1992

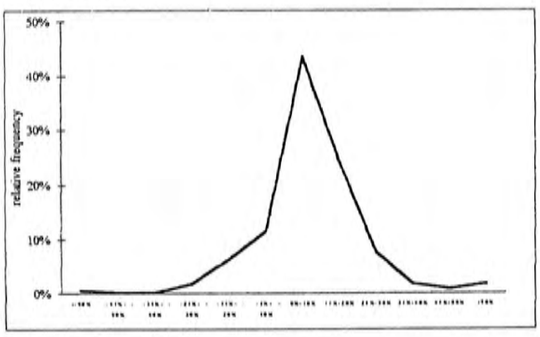
(c) 1993



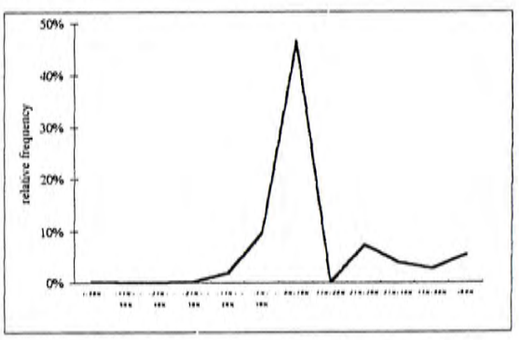
(d) 1994



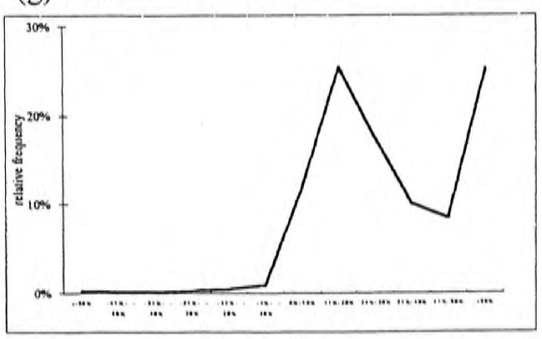
(f) 1995



(f) 1996



(g) 1997



(h) 1998

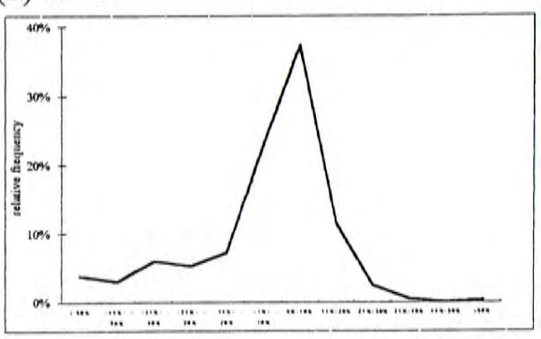
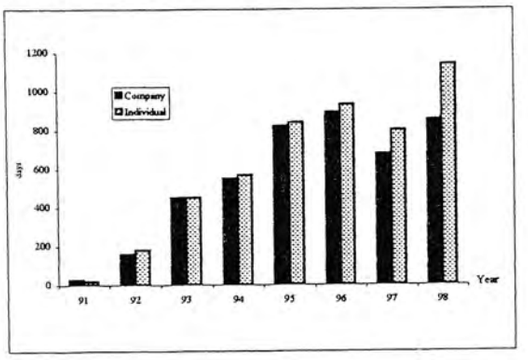
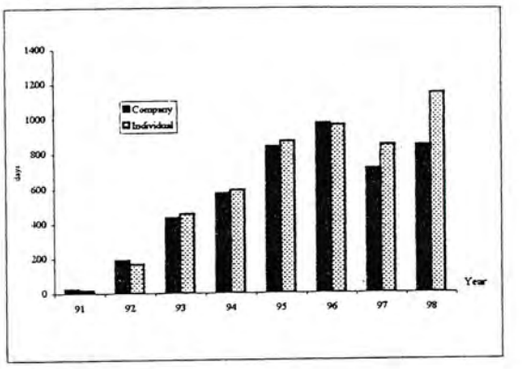


Figure E3 a - g: Comparison on Duration between Company and Individual Investors with Different Categories (1991-1998)

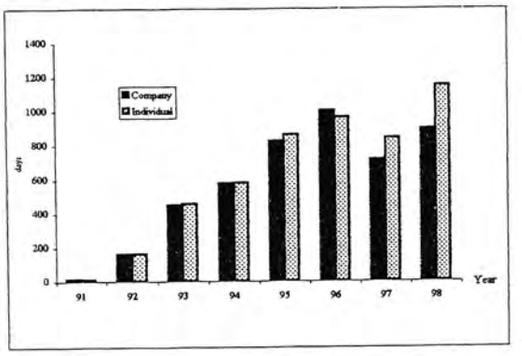
(a) Low Level Premises



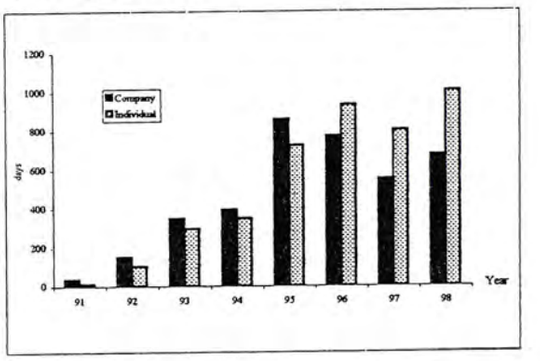
(b) High Level Premises



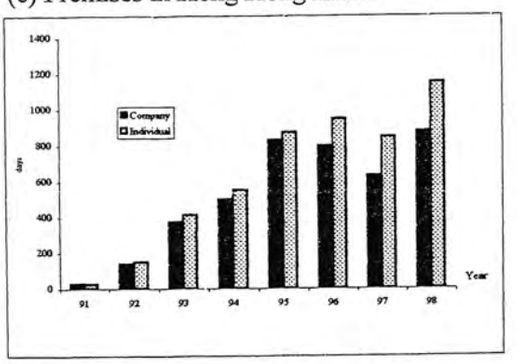
(c) Small & Medium Premises



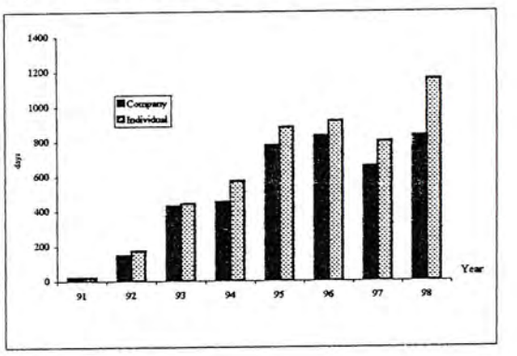
(d) Large Premises



(e) Premises in Hong Kong Island



(f) Premises in Kowloon



(g) Premises in New Territories

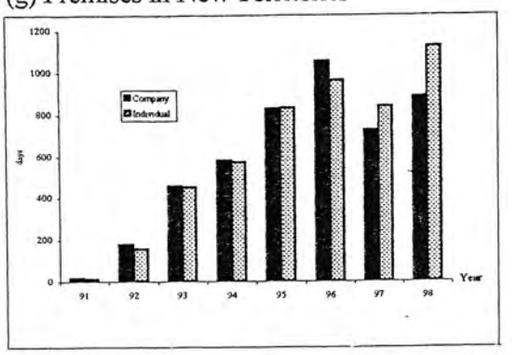
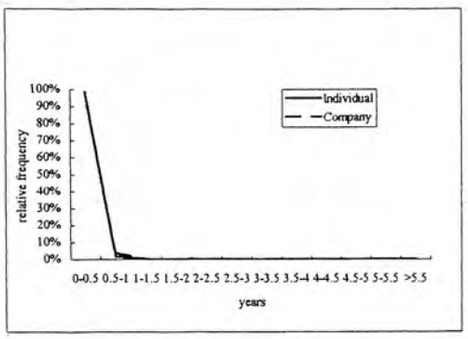
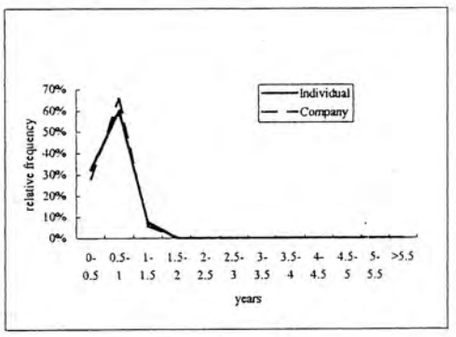


Figure E4 a - h: Comparison on Duration between Company and Individual Investors by Class in Each Year

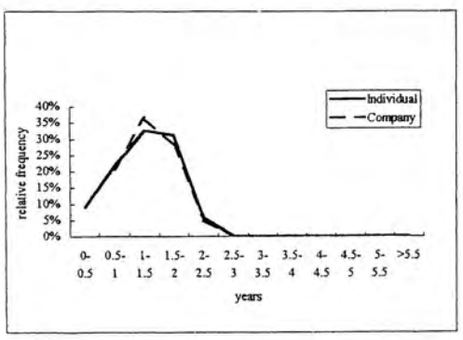
(a) 1991



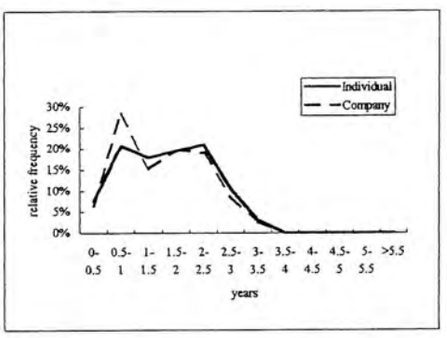
(b) 1992



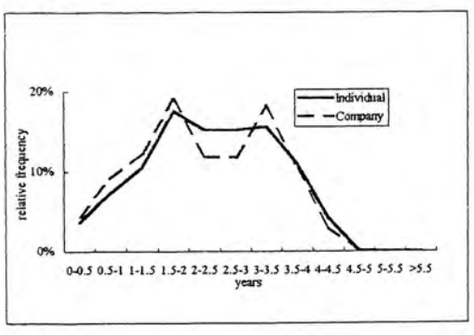
(c) 1993



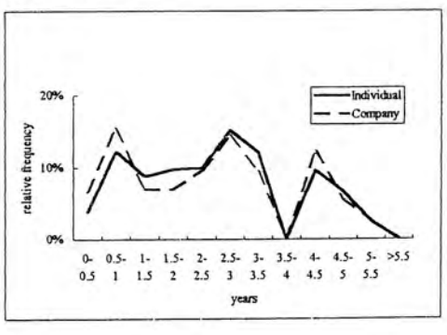
(d) 1994



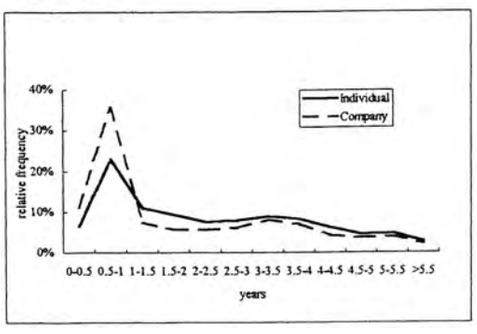
(e) 1995



(f) 1996



(g) 1997



(h) 1998

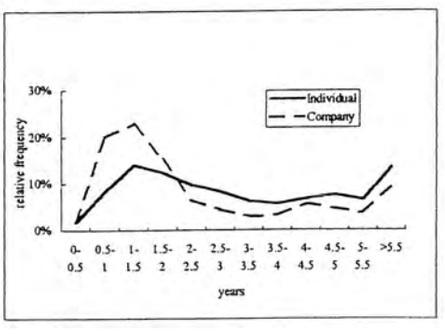
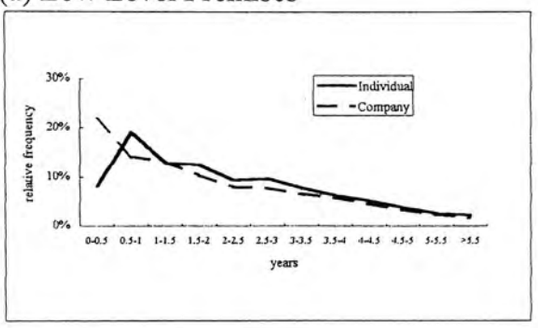
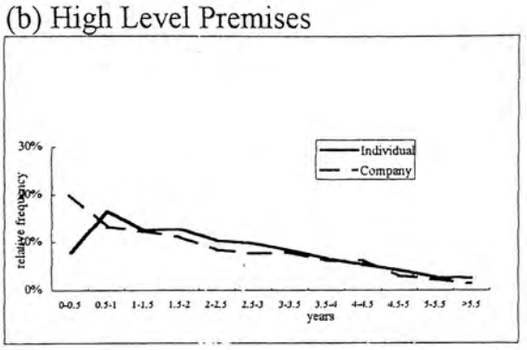


Figure E5 a - g: Comparison on Duration in Different Categories (1991-1998)

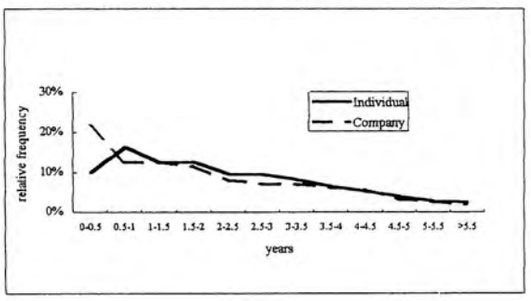
(a) Low Level Premises



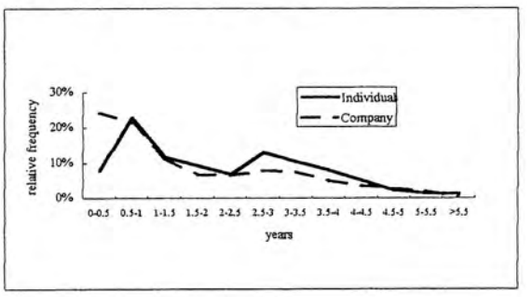
(b) High Level Premises



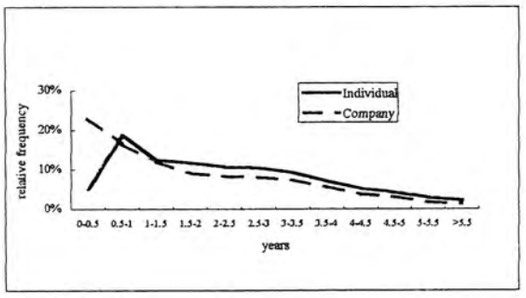
(c) Small & Medium Premises



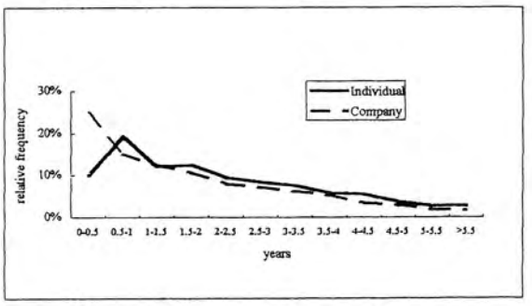
(d) Large Premises



(e) Premises in Hong Kong Island



(f) Premises in Kowloon



(g) Premises in New Territories

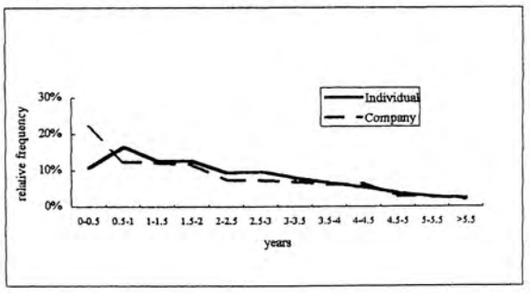
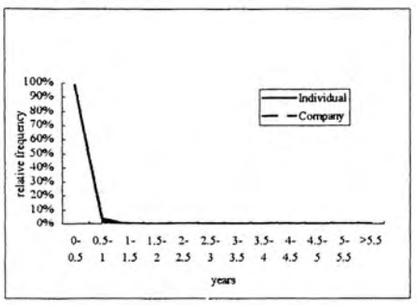
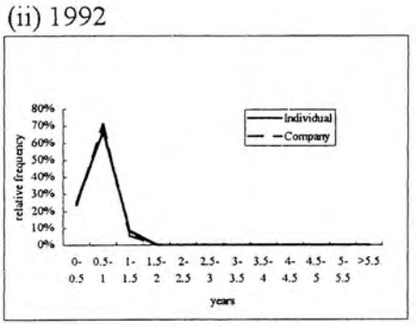


Figure E6 a: Comparison on Duration in Low Level Premises in Each Year

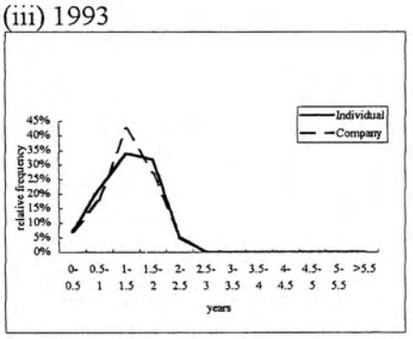
(i) 1991



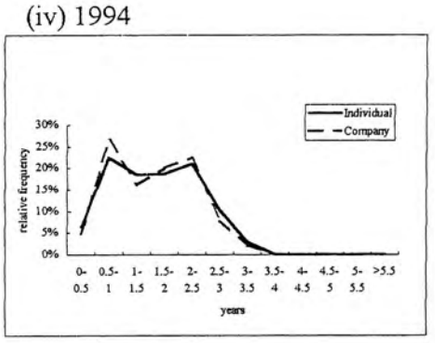
(ii) 1992



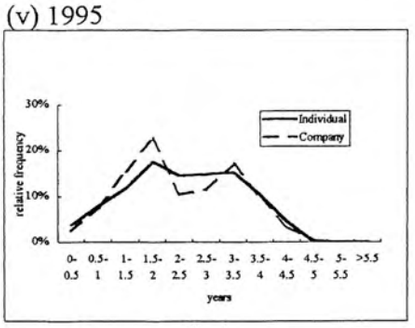
(iii) 1993



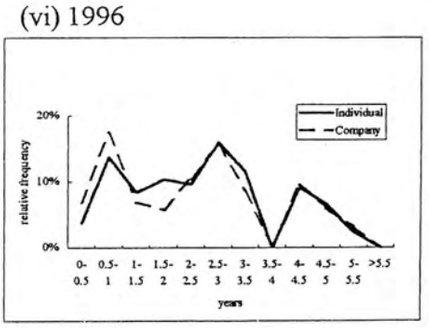
(iv) 1994



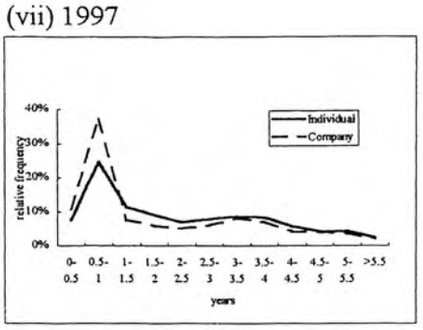
(v) 1995



(vi) 1996



(vii) 1997



(viii) 1998

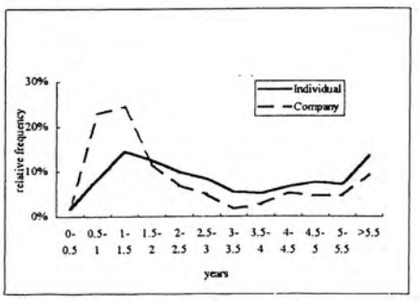
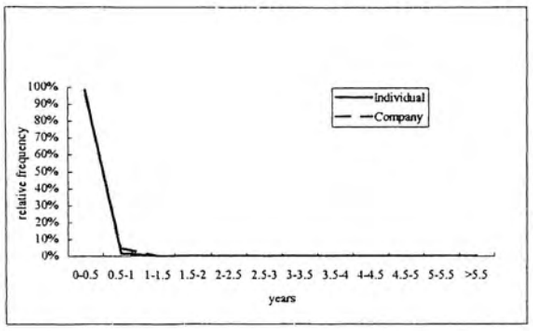
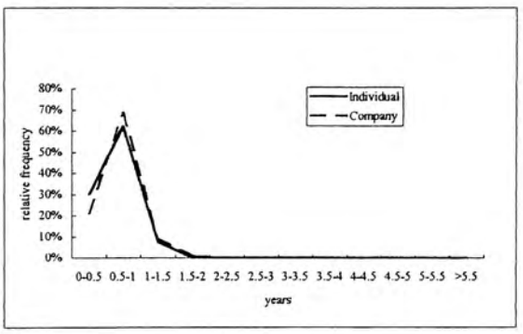


Figure E6 b: Comparison on Duration in High Level Premises in Each Year

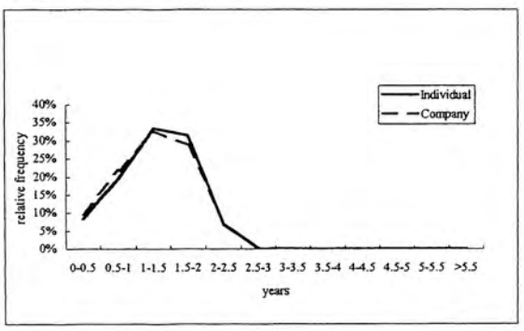
(i) 1991



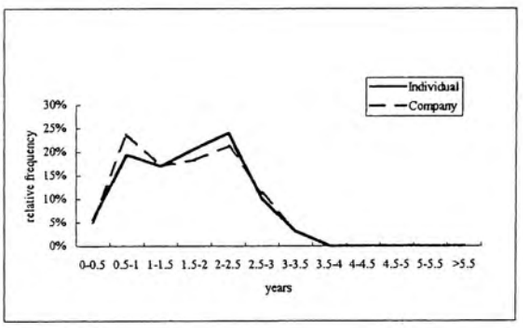
(ii) 1992



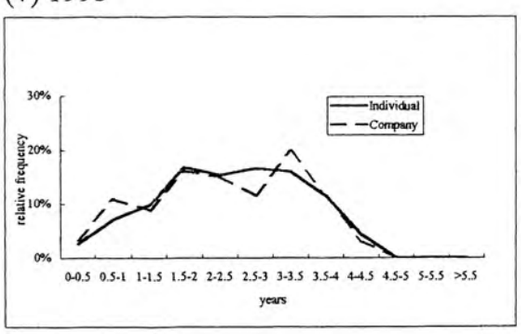
(iii) 1993



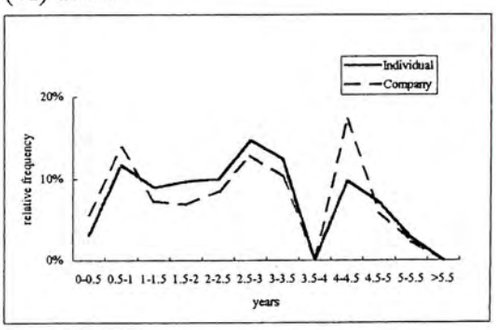
(iv) 1994



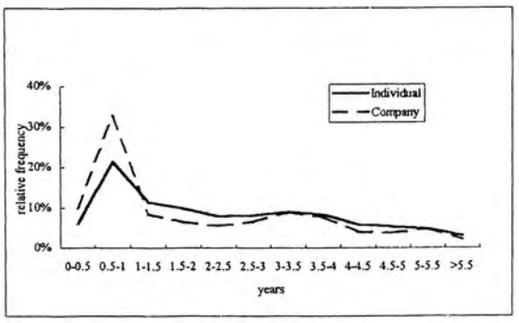
(v) 1995



(vi) 1996



(vii) 1997



(viii) 1998

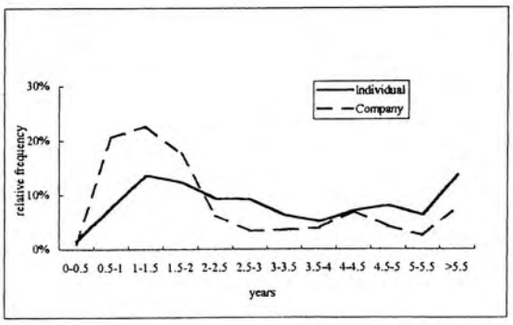
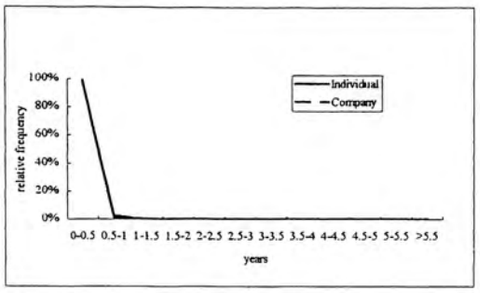
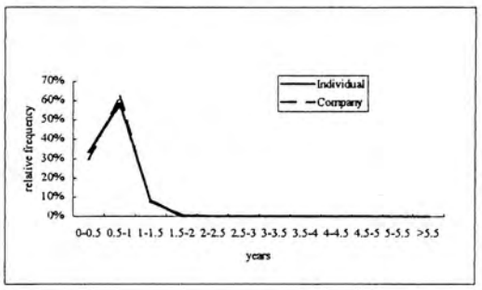


Figure E6 c: Comparison on Duration in Small and Medium Premises in Each Year

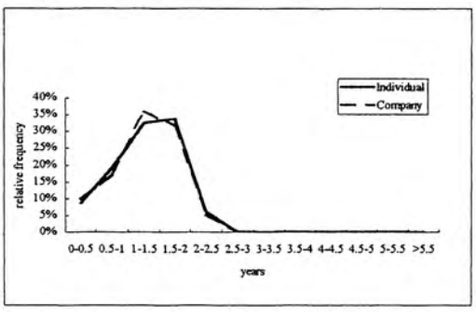
(i) 1991



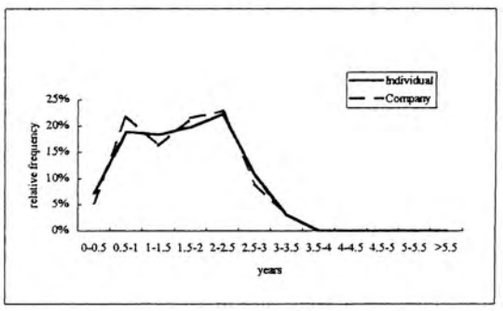
(ii) 1992



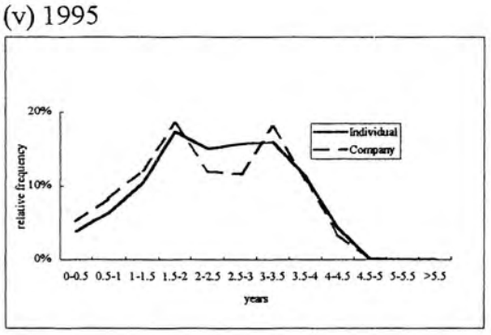
(iii) 1993



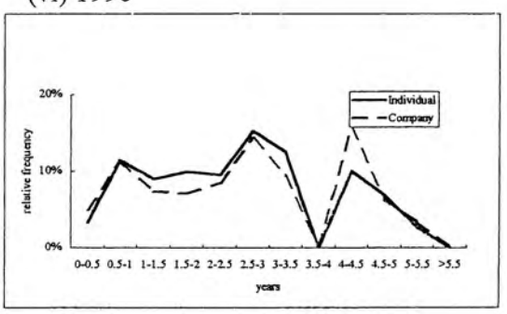
(iv) 1994



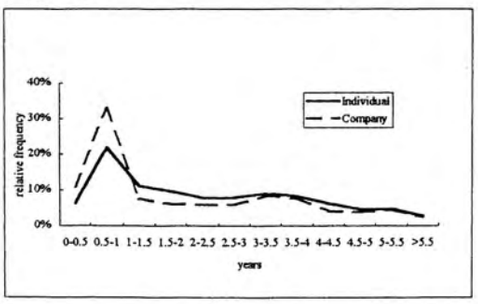
(v) 1995



(vi) 1996



(vii) 1997



(viii) 1998

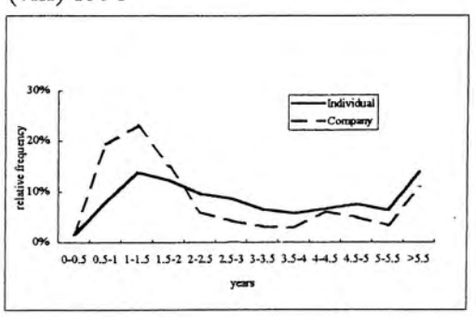
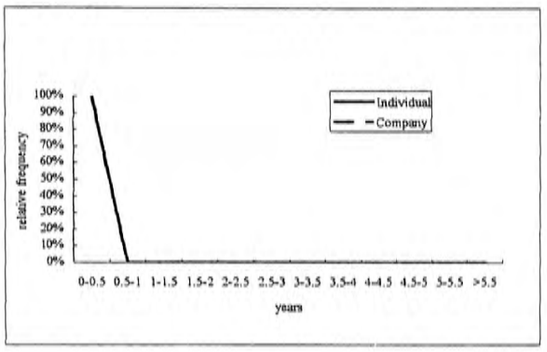
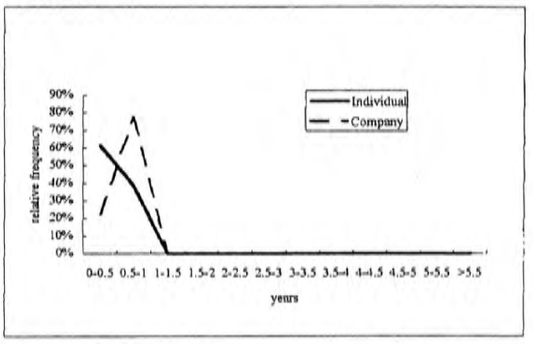


Figure E6 d: Comparison on Duration in Large Premises in Each Year

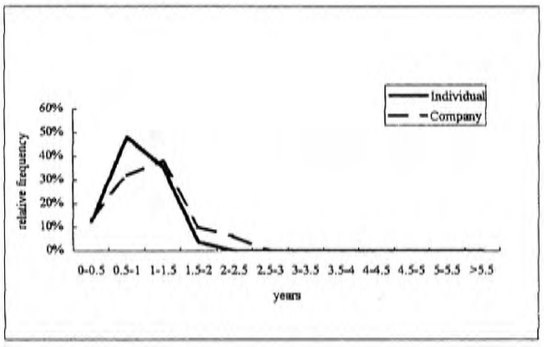
(i) 1991



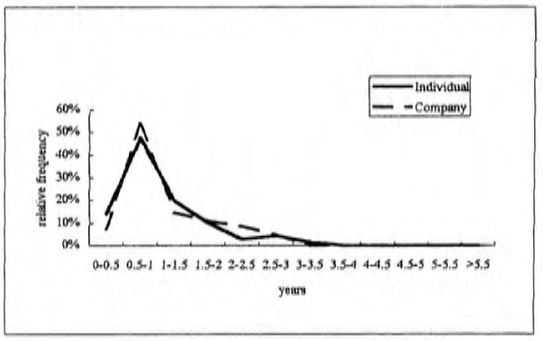
(ii) 1992



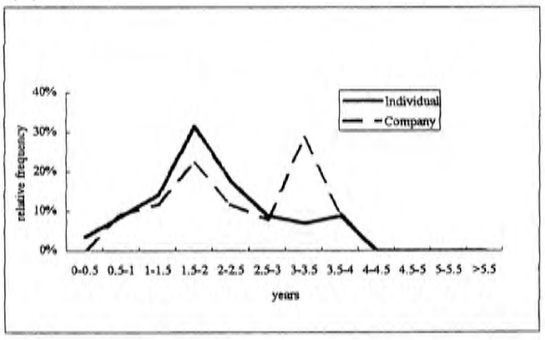
(iii) 1993



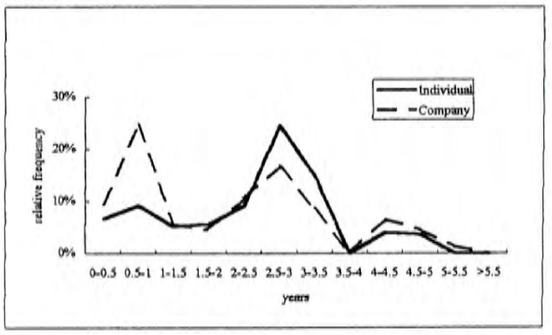
(iv) 1994



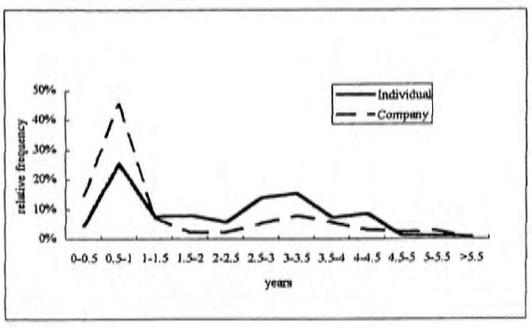
(v) 1995



(vi) 1996



(vii) 1997



(viii) 1998

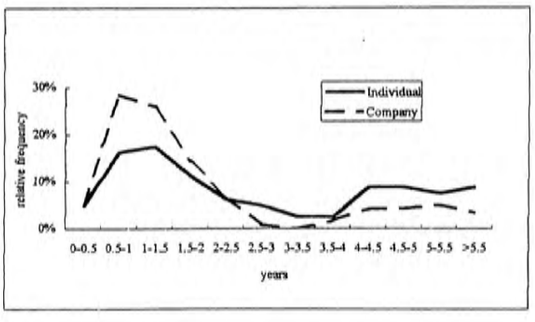
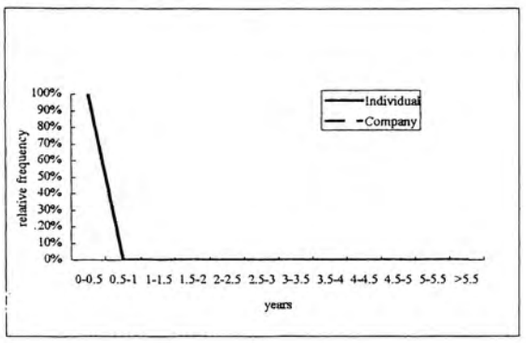
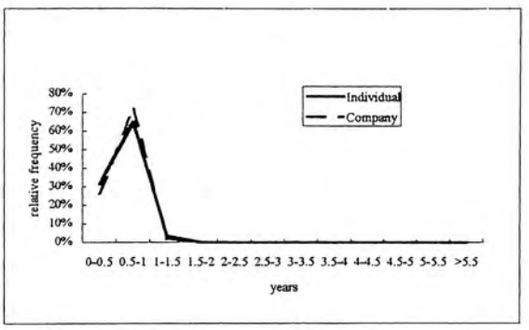


Figure E6 e: Comparison on Duration in Hong Kong Island Premises in Each Year

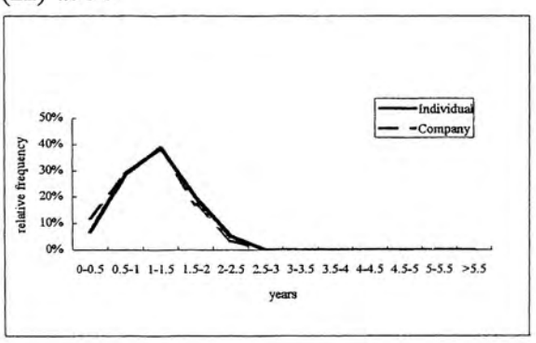
(i) 1991



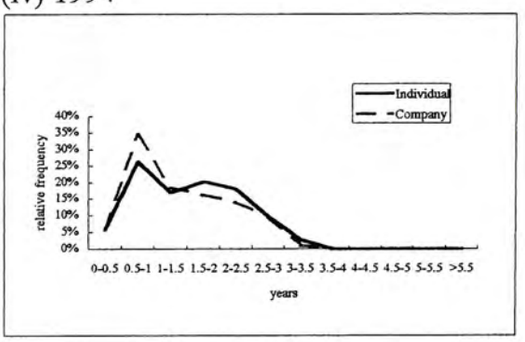
(ii) 1992



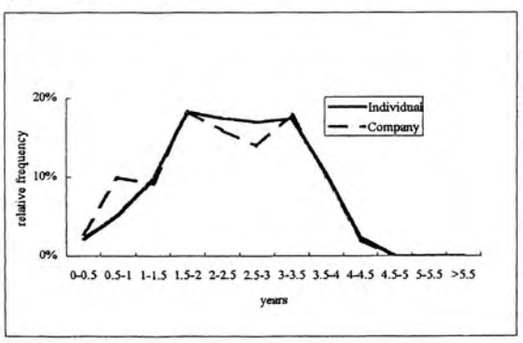
(iii) 1993



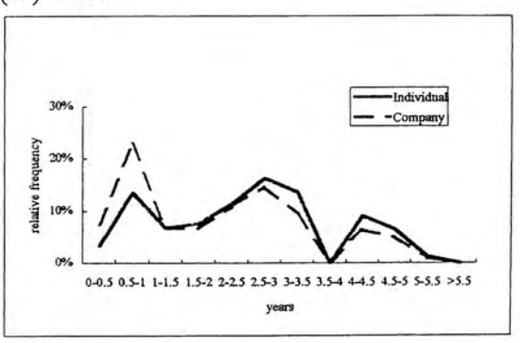
(iv) 1994



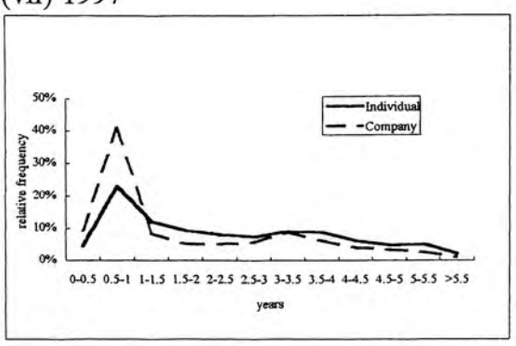
(v) 1995



(vi) 1996



(vii) 1997



(viii) 1998

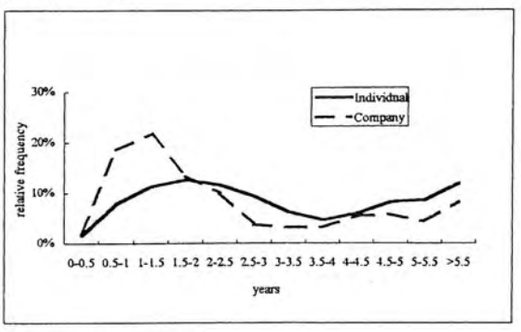
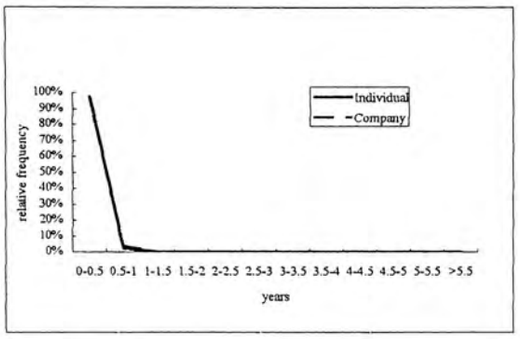
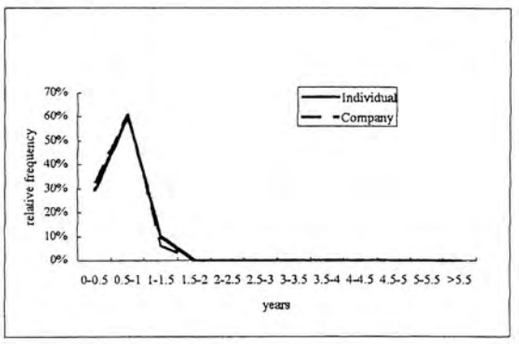


Figure E6 f: Comparison on Duration in Kowloon Premises in Each Year

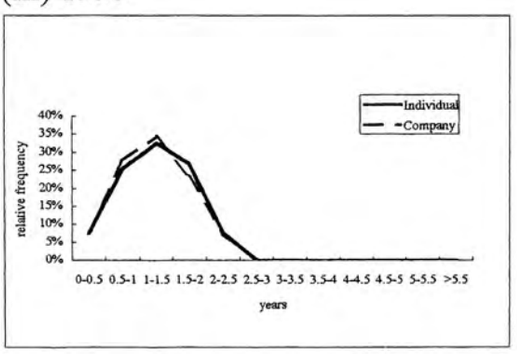
(i) 1991



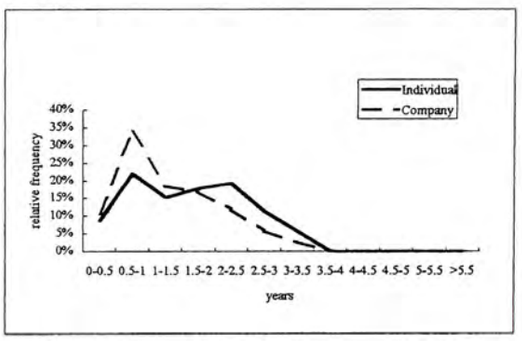
(ii) 1992



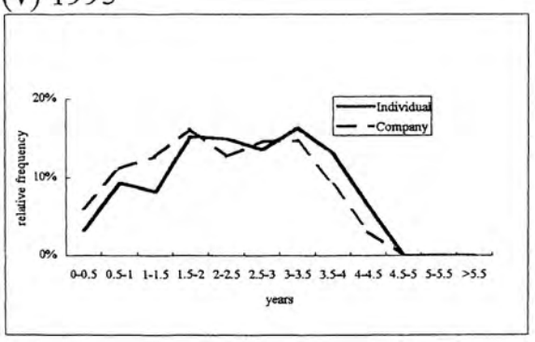
(iii) 1993



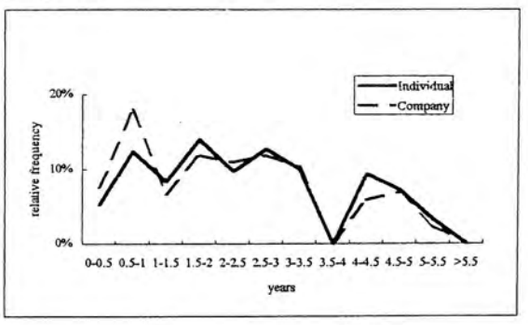
(iv) 1994



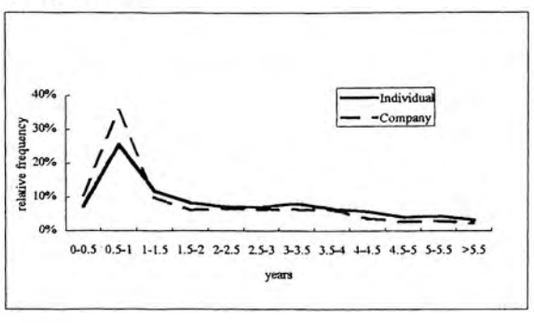
(v) 1995



(vi) 1996



(vii) 1997



(viii) 1998

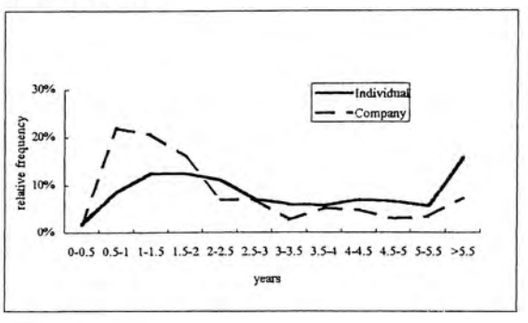
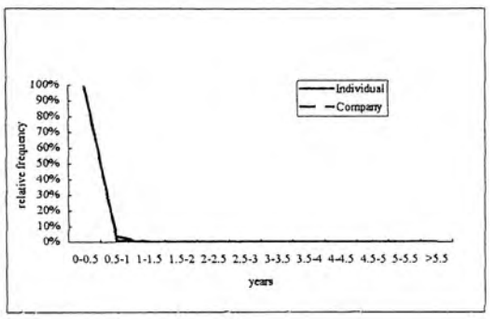
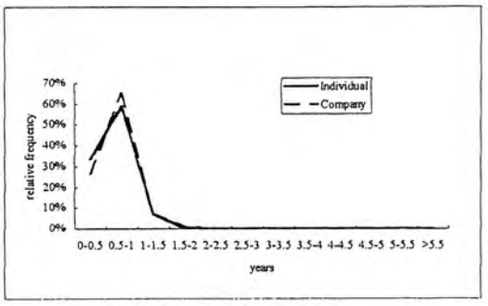


Figure E6 g: Comparison on Duration in New Territories Premises in Each Year

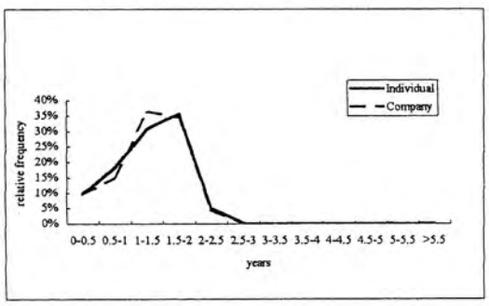
(i) 1991



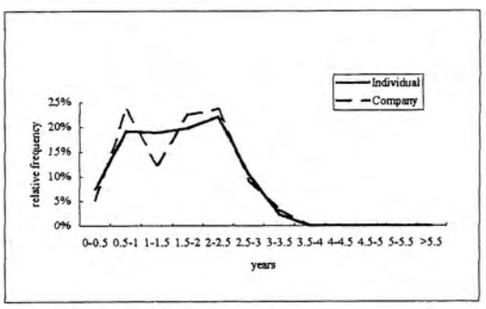
(ii) 1992



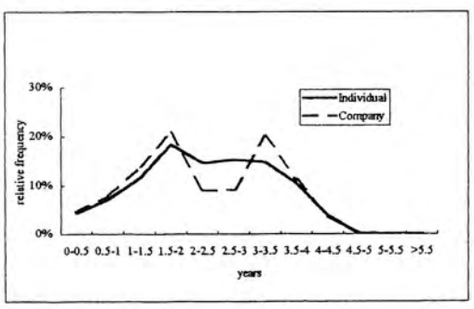
(iii) 1993



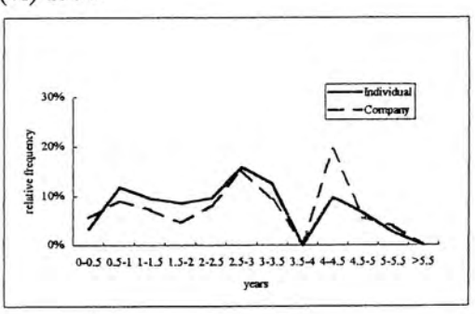
(iv) 1994



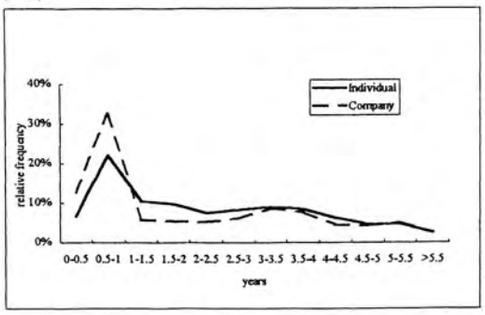
(v) 1995



(vi) 1996



(vii) 1997



(viii) 1998

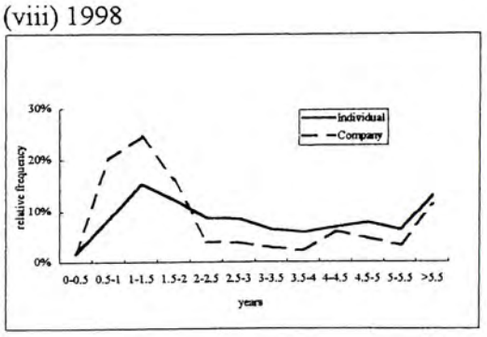
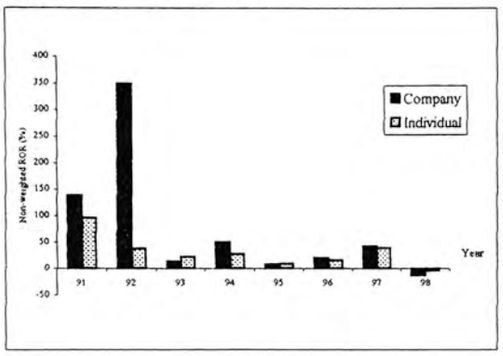
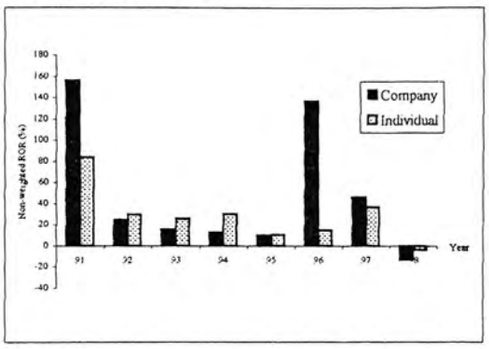


Figure E7 a - g: Comparison on Rates of Return between Company and Individual Investors (1991-1998)

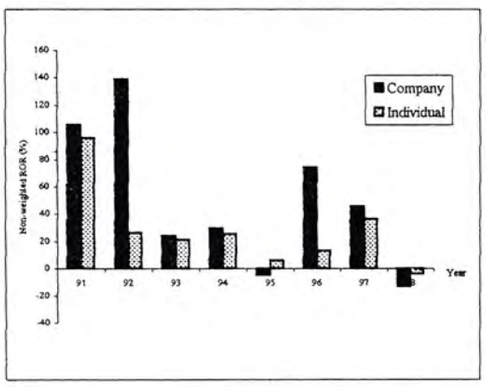
(a) Low Level Premises



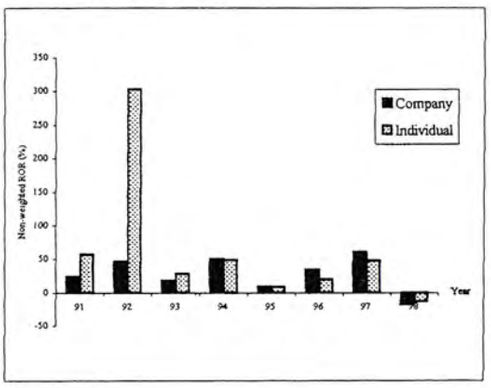
(b) High Level Premises



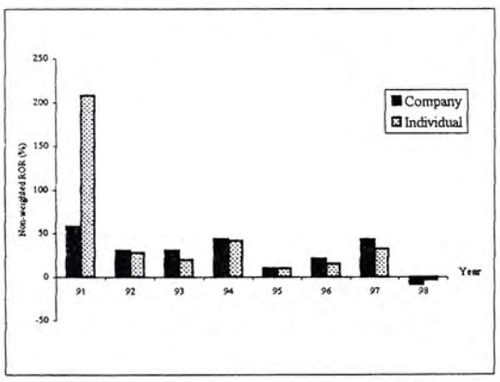
(c) Small & Medium Premises



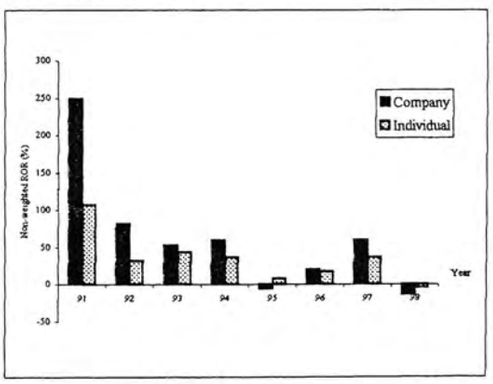
(d) Large Premises



(e) Premises in Hong Kong Islands



(f) Premises in Kowloon



(g) Premises in New Territories

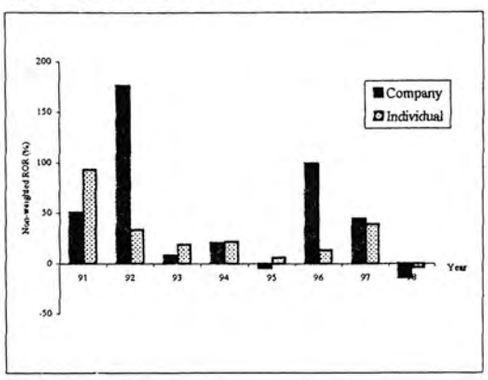
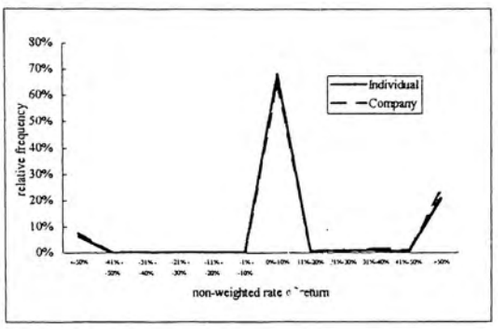
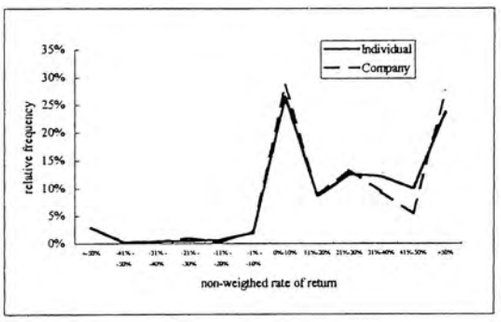


Figure E8 a - h: Comparison on Rates of Return between Company and Individual Investors in Each Year

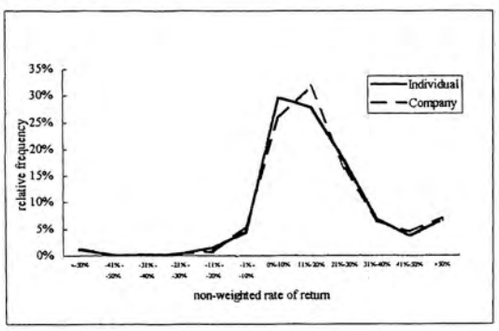
(a) 1991



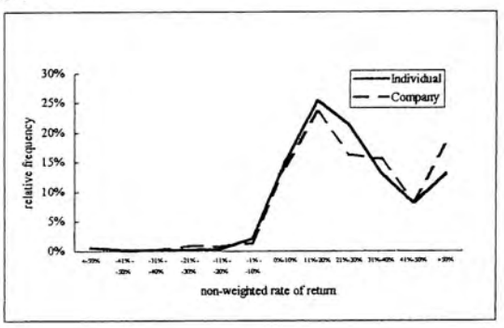
(b) 1992



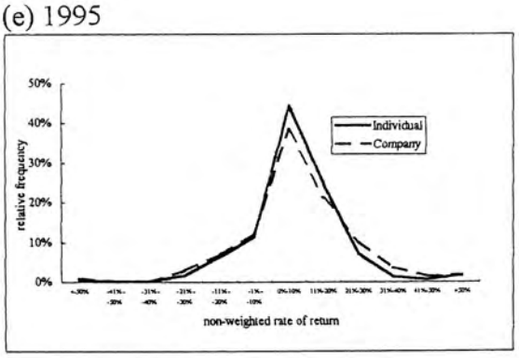
(c) 1993



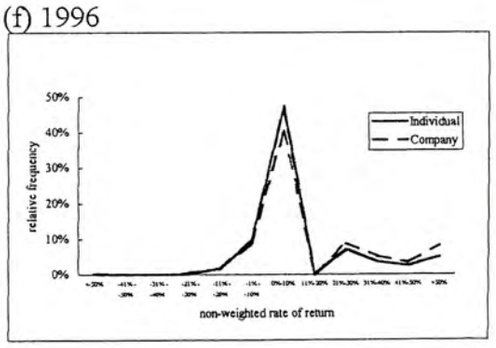
(d) 1994



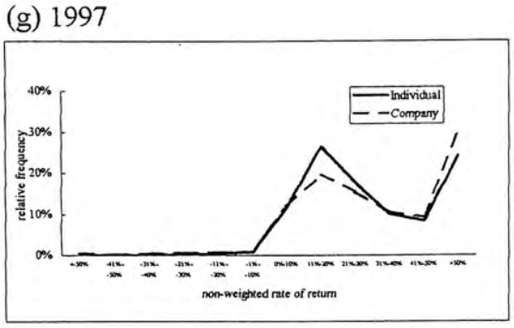
(e) 1995



(f) 1996



(g) 1997



(h) 1998

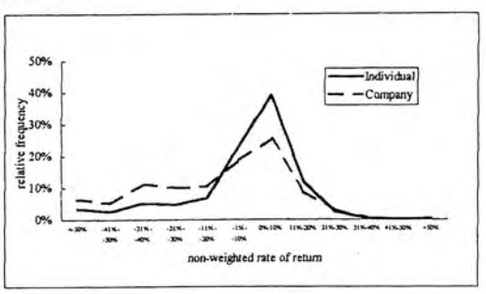
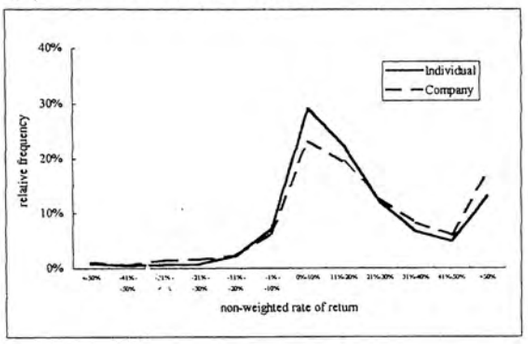
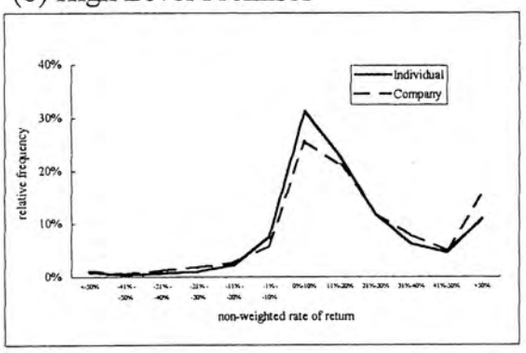


Figure E9 a - g: Comparison on Rates of Return in Different Categories (1991-1998)

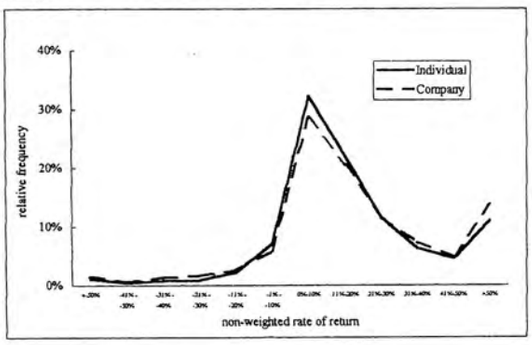
(a) Low Level Premises



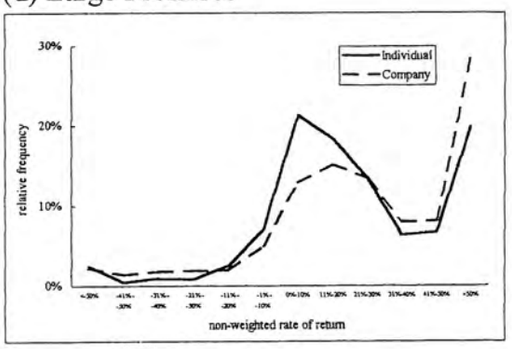
(b) High Level Premises



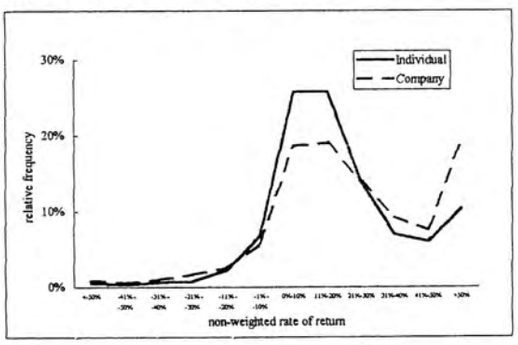
(c) Small & Medium Premises



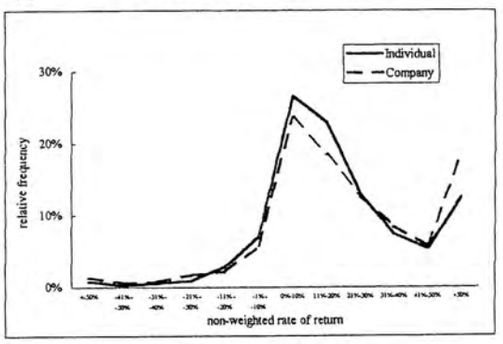
(d) Large Premises



(e) Premises in Hong Kong Island



(f) Premises in Kowloon



(g) Premises in New Territories

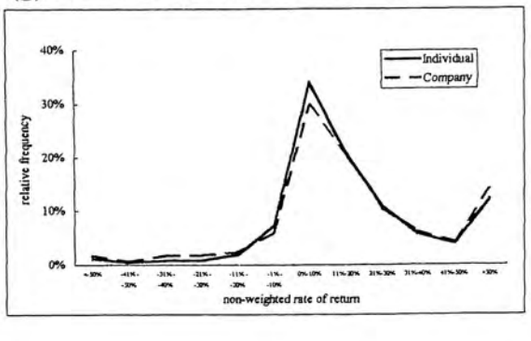
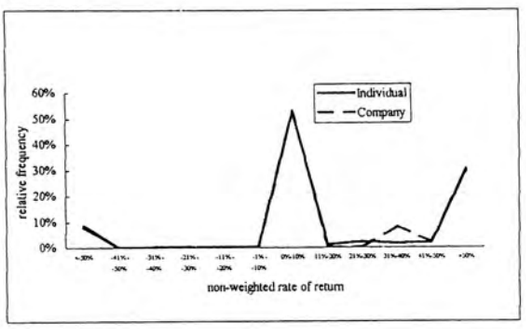
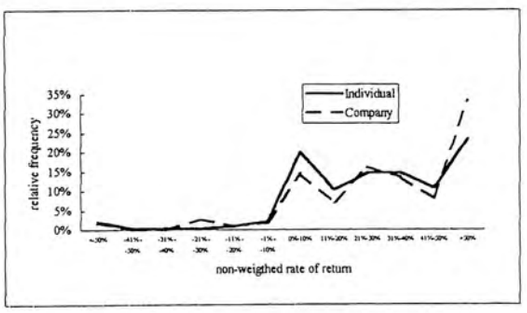


Figure E10 a: Comparison on Rates of Return in Low Level Premises in Each Year

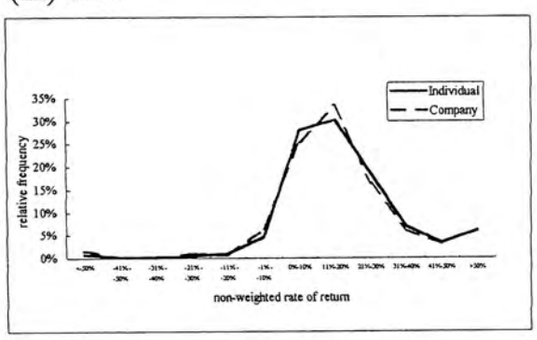
(i) 1991



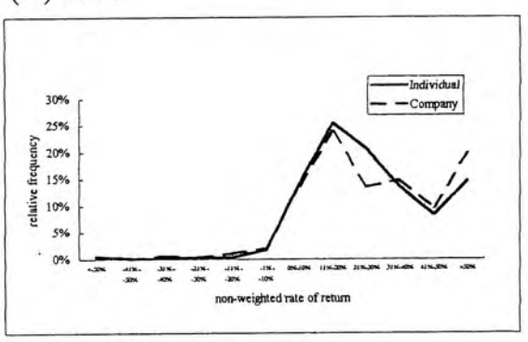
(ii) 1992



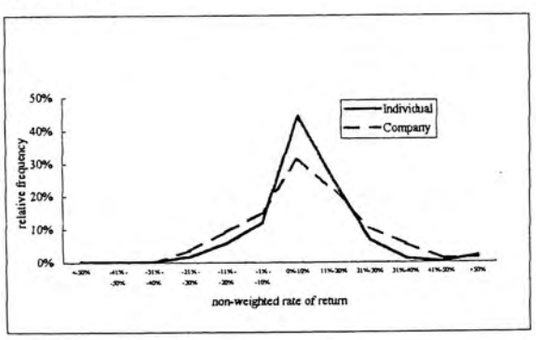
(iii) 1993



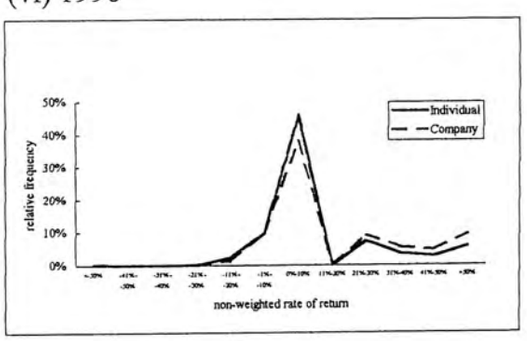
(iv) 1994



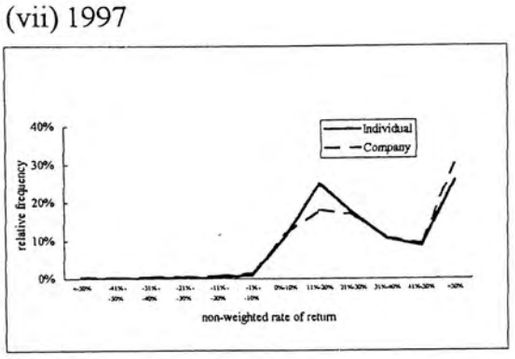
(v) 1995



(vi) 1996



(vii) 1997



(viii) 1998

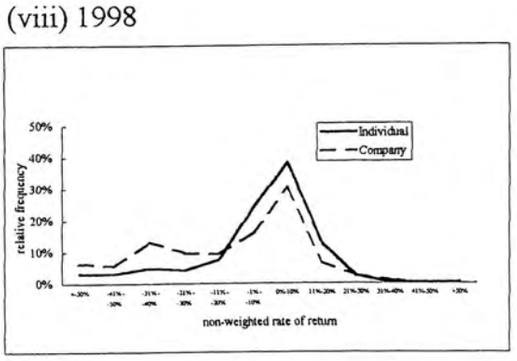
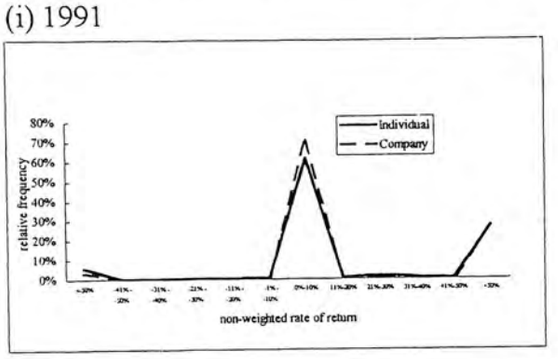
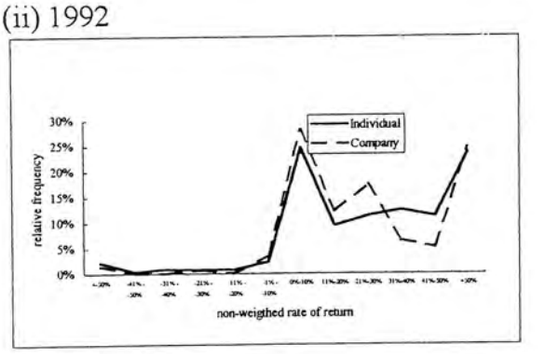


Figure E10 b: Comparison on Rates of Return in High Level Premises in Each Year

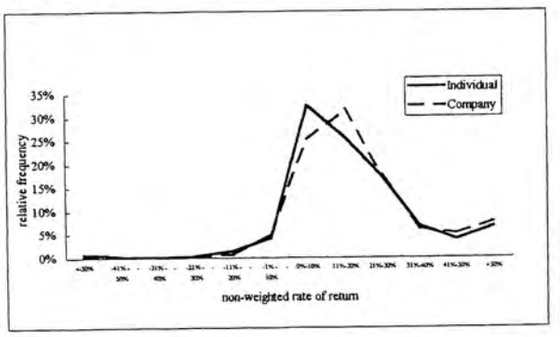
(i) 1991



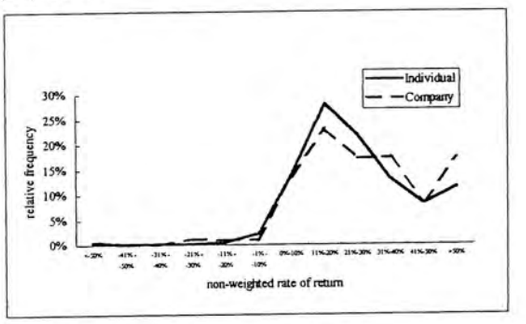
(ii) 1992



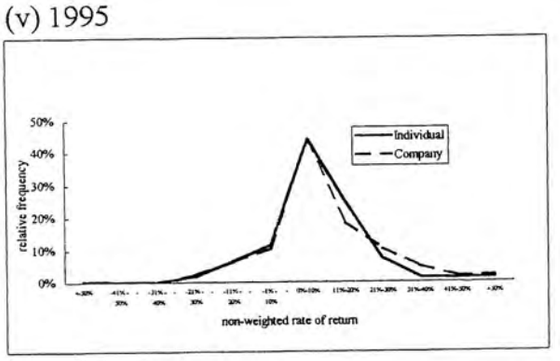
(iii) 1993



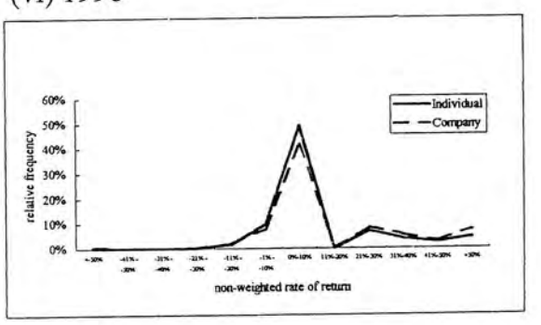
(iv) 1994



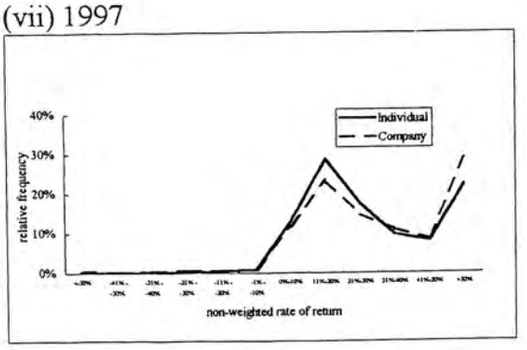
(v) 1995



(vi) 1996



(vii) 1997



(viii) 1998

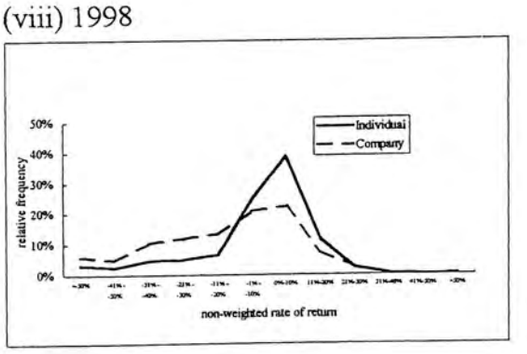
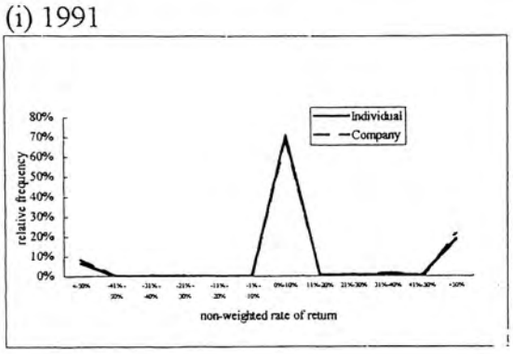
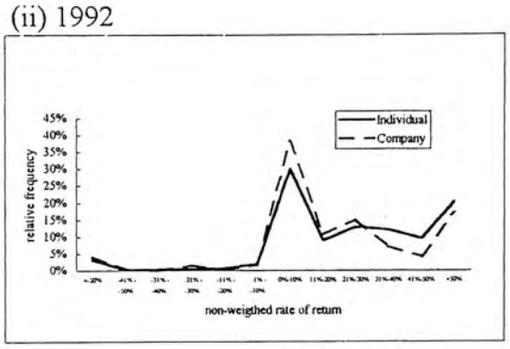


Figure E10 c: Comparison on Rates of Return in Small and Medium Premises in Each Year

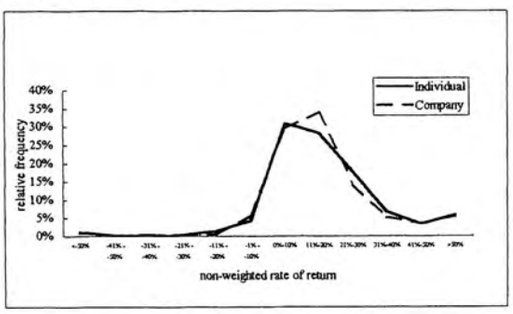
(i) 1991



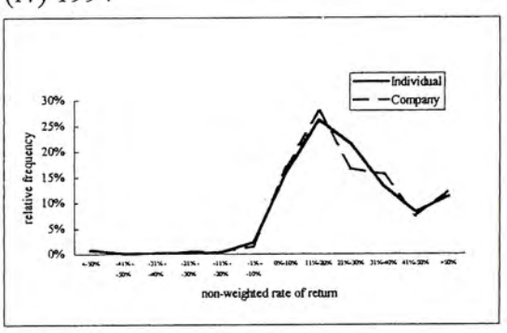
(ii) 1992



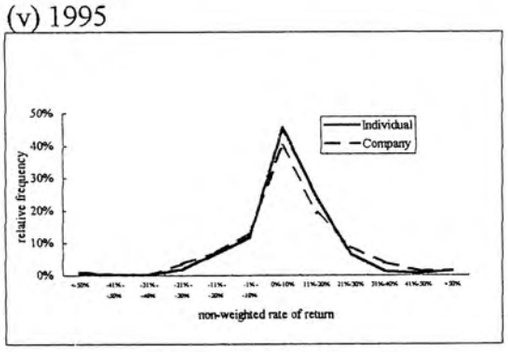
(iii) 1993



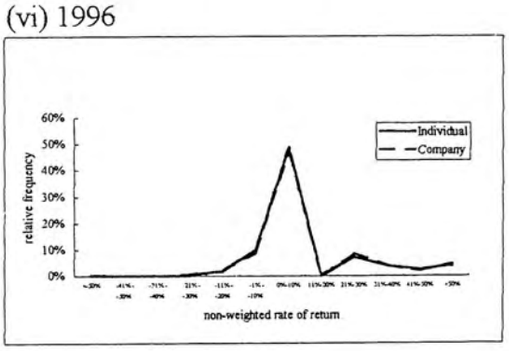
(iv) 1994



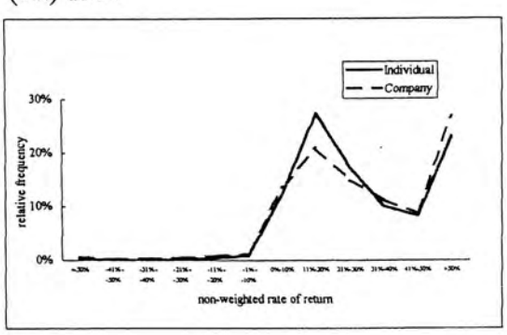
(v) 1995



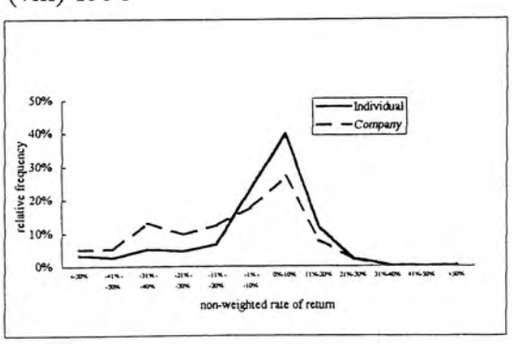
(vi) 1996



(vii) 1997

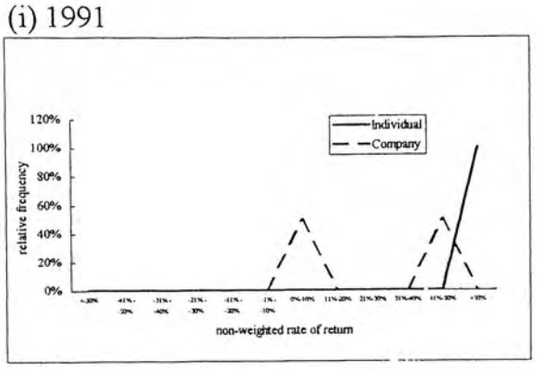


(viii) 1998

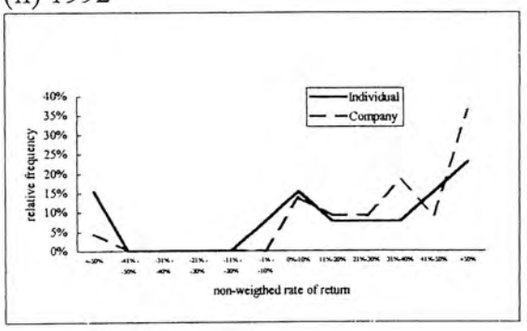


FigureE10 d: Comparison on Rates of Return in Large Premises in Each Year

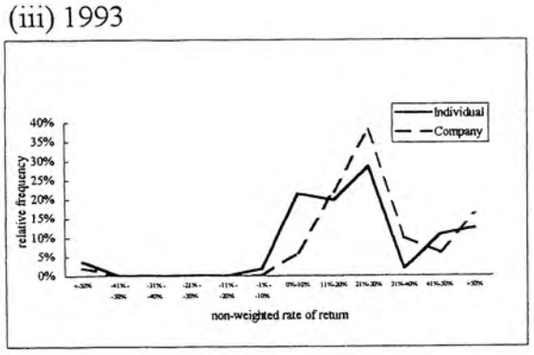
(i) 1991



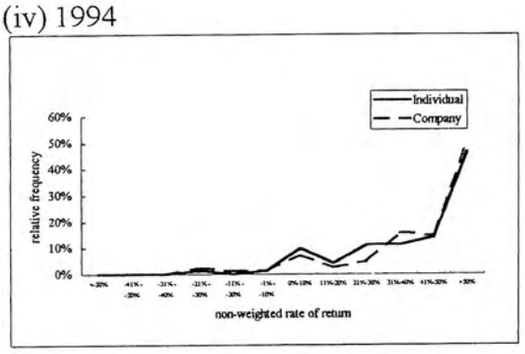
(ii) 1992



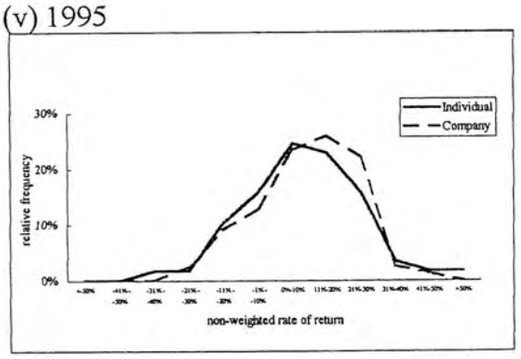
(iii) 1993



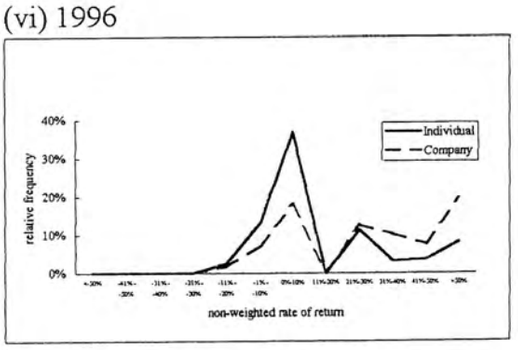
(iv) 1994



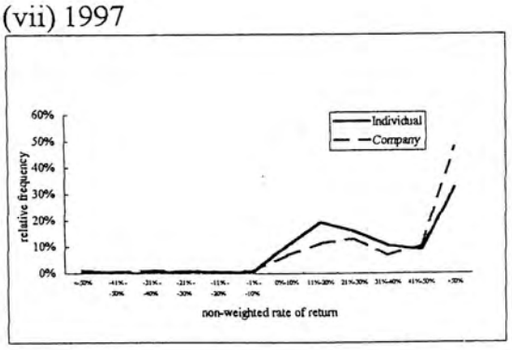
(v) 1995



(vi) 1996



(vii) 1997



(viii) 1998

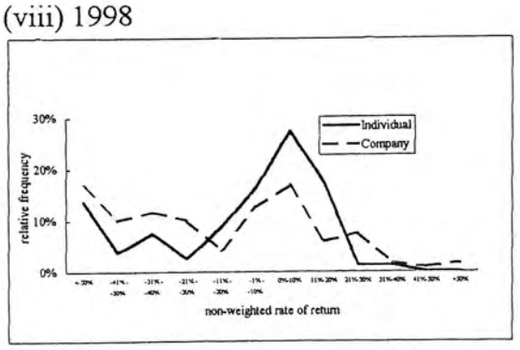
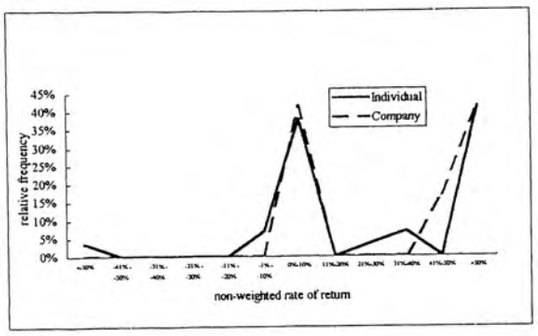
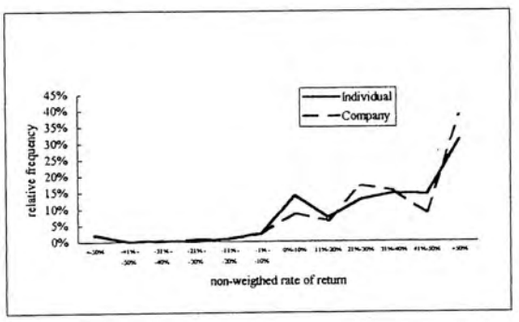


Figure E10 e: Comparison on Rates of Return in Hong Kong Island Premises in Each Year

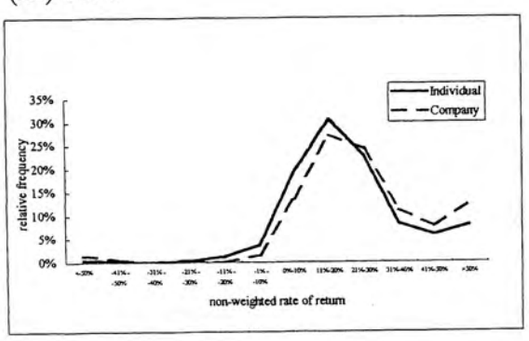
(i) 1991



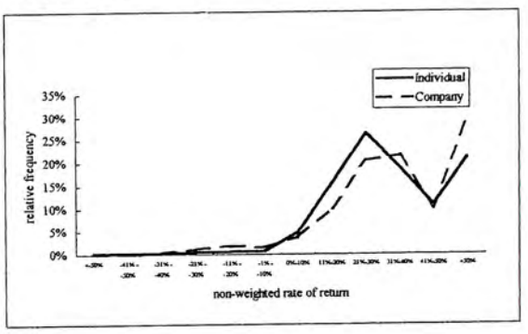
(ii) 1992



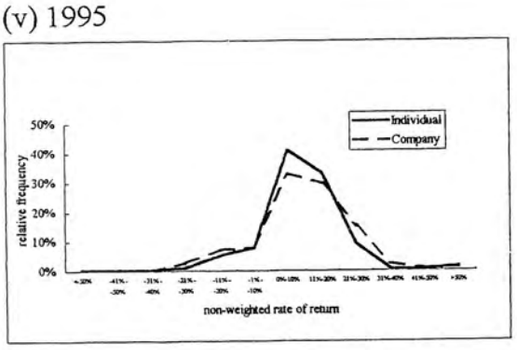
(iii) 1993



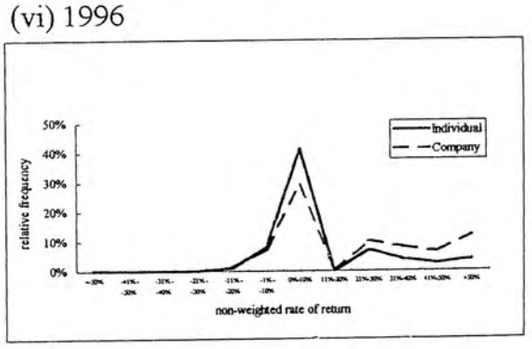
(iv) 1994



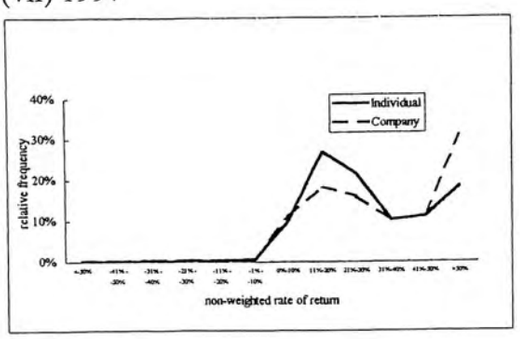
(v) 1995



(vi) 1996



(vii) 1997



(viii) 1998

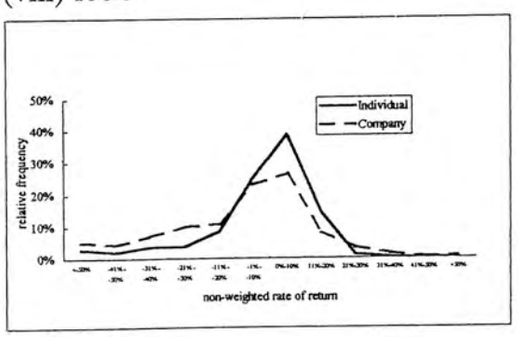
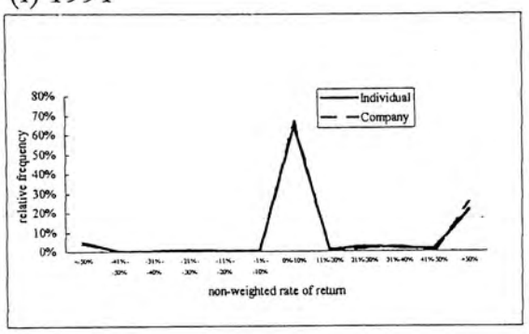
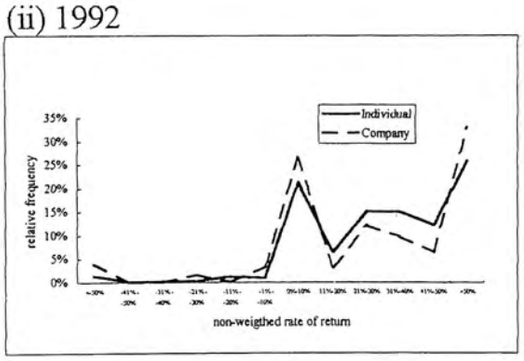


Figure E10 f: Comparison on Rates of Return in Kowloon Premises in Each Year

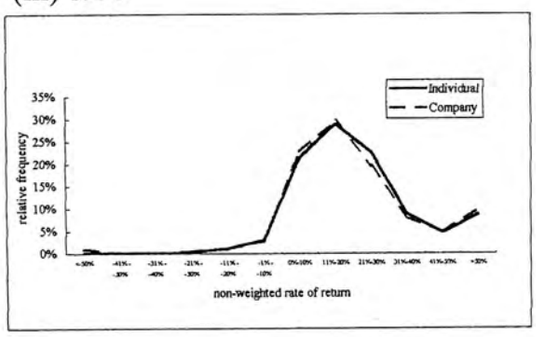
(i) 1991



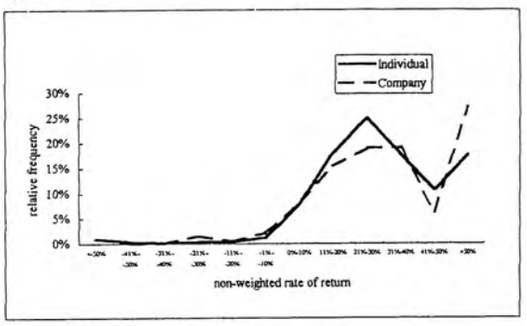
(ii) 1992



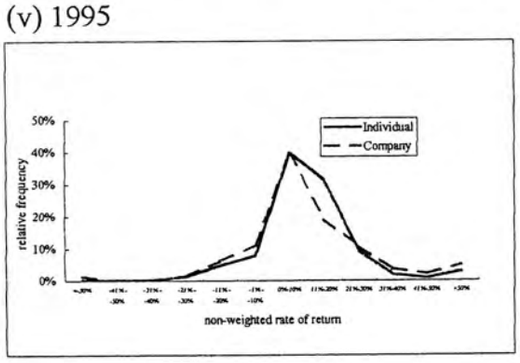
(iii) 1993



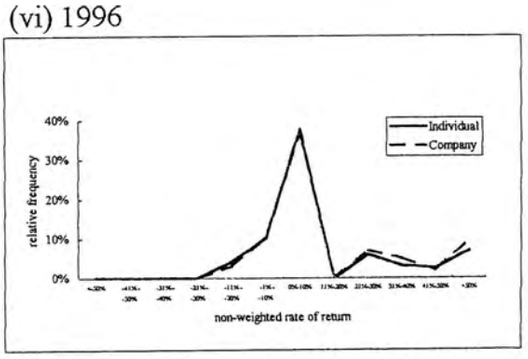
(iv) 1994



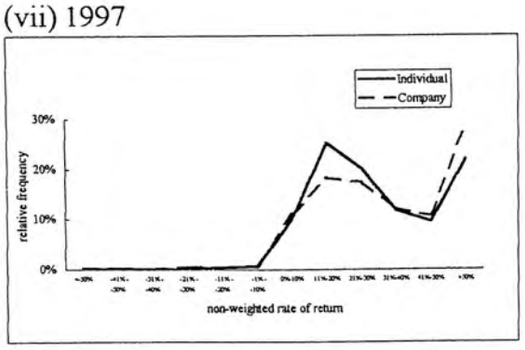
(v) 1995



(vi) 1996



(vii) 1997



(viii) 1998

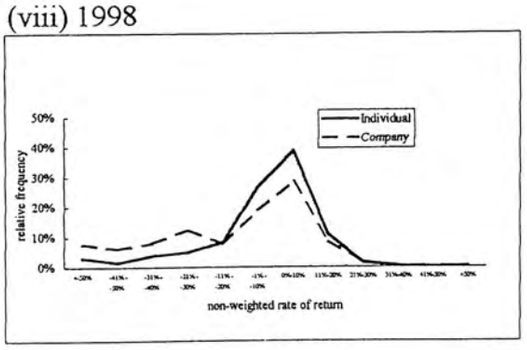
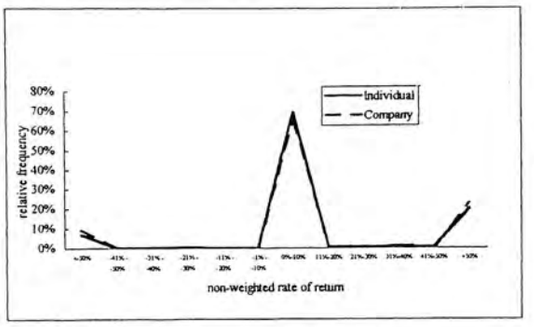
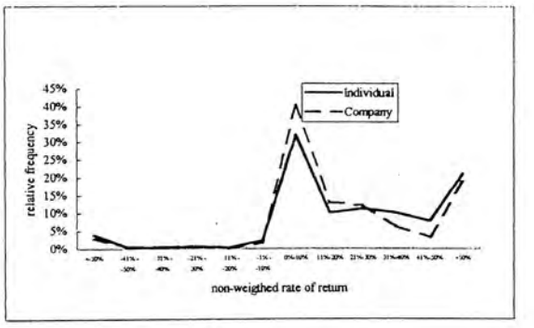


Figure E10 g: Comparison on Rates of Return in New Territories Premises in Each Year

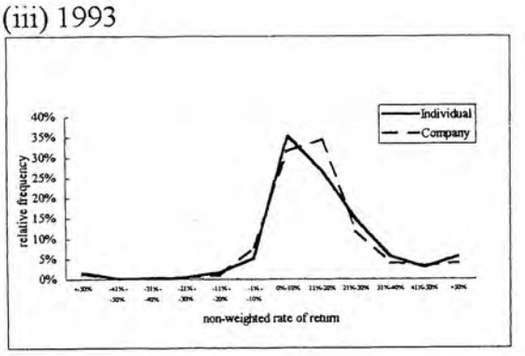
(i) 1991



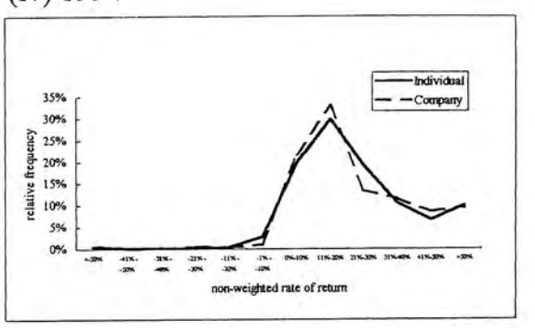
(ii) 1992



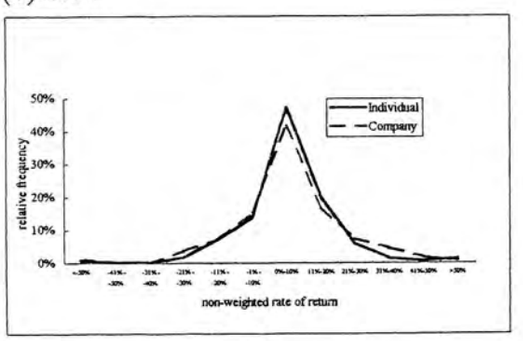
(iii) 1993



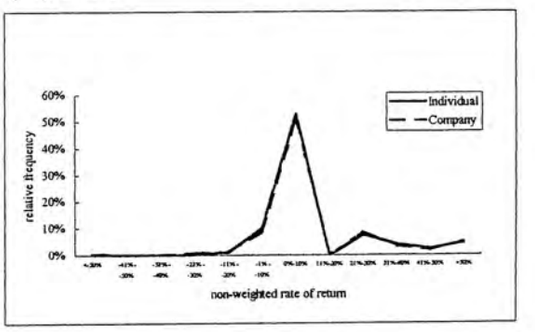
(iv) 1994



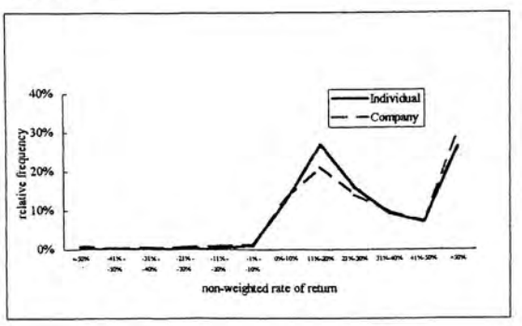
(v) 1995



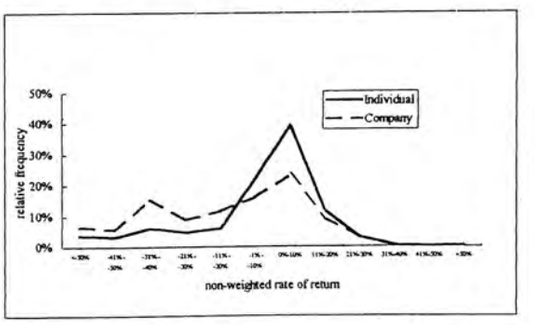
(vi) 1996



(vii) 1997



(viii) 1998



Appendix F

Table F1: Average Duration of Company and Individual Investors (1991-1998)

	91	92	93	94	95	96	97	98
Aggregate Data								
Company	17.01	160.64	433.18	535.01	818.34	921.17	679.81	870.01
Individual	12.72	161.25	443.31	568.93	850.78	948.45	830.84	1135.21
Low Level								
Company	26.33	159.52	450.79	551.63	820.64	891.83	674.97	851.47
Individual	18.13	178.67	451.34	568.08	838.31	930.02	800.10	1136.62
High Level								
Company	23.03	190.50	433.73	572.12	841.95	974.02	716.20	852.83
Individual	17.05	165.91	455.32	592.02	871.85	965.51	849.95	1149.32
Small & Medium Premises								
Company	13.81	161.95	450.20	577.45	825.07	1005.29	715.19	896.60
Individual	11.31	162.88	456.28	581.62	863.02	964.56	843.45	1149.52
Large Premise								
Company	35.75	151.32	350.30	394.40	859.19	772.22	551.30	675.82
Individual	11.00	102.85	294.89	350.65	725.56	934.19	802.46	1003.04
Hong Kong Islands								
Company	27.75	139.15	374.24	498.96	829.81	796.20	629.65	876.16
Individual	25.48	150.70	411.97	552.83	869.49	946.51	845.15	1147.09
Kowloon								
Company	18.45	148.89	428.24	451.01	780.35	832.03	654.28	832.55
Individual	18.37	172.57	441.56	574.18	882.35	918.70	800.75	1157.96
New Territories								
Company	15.77	177.98	457.21	581.65	829.52	1053.17	723.27	882.35
Individual	11.00	157.41	451.39	570.42	832.35	961.21	837.93	1123.75

Table F2: Testing Means of Duration by using Analysis of Variance (ANOVA)

Duration														
	n_c	n_i	$\overline{X_c}$	$\overline{X_2}$	$\overline{\overline{X}}$	SS_a	df(a-1)	MS_a	SS_e	df (n_c-1)	df(n_i-1)	MS_e	F ratio	p-value
Aggregate	10984	62331	689.89	784.48	770.31	83559960.15	1	83559960.15	21616347851.49	10983	62330	294850.13	283.40	<0.001
Low	3337	19994	696.18	781.33	769.15	20736166.93	1	20736166.93	4859070591.21	3336	19993	208284.56	99.56	<0.001
High	3311	18303	730.22	814.96	801.98	20134083.71	1	20134083.71	3064789119.62	3310	18302	141809.60	141.98	<0.001
S&M	7474	52973	717.68	794.70	785.18	38848975.69	1	38848975.69	17775732187.31	7473	52972	294081.10	132.10	<0.001
Large	732	1019	621.87	757.33	678.50	7816430.38	1	7816430.38	498377617.21	1018	731	284950.04	27.43	<0.001
HK	3068	9042	664.93	829.61	787.89	62122147.56	1	62122147.56	3638304057.72	3067	9041	300487.62	206.74	<0.001
KL	2526	14608	644.64	771.49	752.79	34649177.30	1	34649177.30	5361970334.50	2525	14607	312979.82	110.71	<0.001
NT	5390	38681	725.30	778.84	772.29	13563048.77	1	13563048.77	13903860026.99	5389	38680	315502.05	42.99	<0.001

Table F3: Rates of Return of Company and Individual Investors (1991-1998)

	91	92	93	94	95	96	97	98
Aggregate Data								
Company	103.98	114.86	20.84	34.09	-0.69	56.18	47.70	-12.43
Individual	97.64	32.44	25.26	27.56	7.01	14.36	37.43	-4.05
Low Level								
Company	138.35	348.29	13.45	49.32	8.20	20.32	42.42	-13.00
Individual	95.94	37.27	22.13	28.09	9.16	15.51	38.51	-3.97
High Level								
Company	155.79	24.64	15.02	12.49	10.00	136.66	45.77	-13.20
Individual	83.57	29.24	25.84	30.04	10.40	14.73	36.69	-3.97
Small & Medium Premises								
Company	105.56	138.79	23.98	29.81	-4.39	74.15	45.75	-12.84
Individual	95.93	26.23	21.16	25.26	6.11	13.37	36.26	-3.73
Large Premise								
Company	23.26	47.09	17.82	49.98	9.32	33.52	60.68	-18.41
Individual	57.21	302.67	28.26	48.84	7.88	19.23	47.24	-13.66
Hong Kong Islands								
Company	57.99	30.56	30.56	43.24	9.52	20.66	42.73	-8.96
Individual	207.22	27.89	19.41	41.23	9.25	14.85	32.11	-3.37
Kowloon								
Company	248.63	81.95	52.96	60.08	-5.77	19.78	59.51	-13.46
Individual	106.89	32.55	44.06	37.02	8.27	16.79	36.75	-4.00
New Territories								
Company	50.75	176.24	8.01	20.62	-4.45	99.31	44.48	-14.25
Individual	93.42	33.32	18.94	21.76	5.87	13.22	38.93	-4.24

Table F4: Testing Means of Rate of Return by using Analysis of Variance (ANOVA)

ROR														
	n_c	n_i	$\overline{X_c}$	$\overline{X_2}$	$\overline{\overline{X}}$	SS_a	df(a-1)	MS_a	SS_e	df (n_c-1)	df(n_i-1)	MS_e	F ratio	p-value
Overall	10984	62331	40.63	24.17	26.64	2529252.65	1	2529252.65	16263693383.91	10983	62330	221839.15	11.40	<0.001
Low	3337	19994	39.10	24.28	26.40	628143.94	1	628143.94	67061757.73	3336	19993	2874.61	218.51	<0.001
High	3311	18303	53.29	23.21	27.82	2537619.78	1	2537619.78	211658302.10	3310	18302	9793.55	259.11	<0.001
S&M	7474	52973	44.71	23.02	25.70	3083644.32	1	3083644.32	16018117122.90	7473	52972	265003.18	11.64	<0.001
Large	732	1019	36.06	33.32	34.91	3183.72	1	3183.72	15346979.84	1018	731	8774.72	0.36	>0.25
HK	3068	9042	26.95	20.80	22.36	86845.51	1	86845.51	137228768.49	3067	9041	11333.73	7.66	<0.01
KL	2526	14608	44.88	26.76	29.43	707154.66	1	707154.66	1445433316.91	2525	14607	84370.38	8.38	<0.01
NT	5390	38681	46.42	23.98	26.73	2381638.27	1	2381638.27	18950845899.37	5389	38680	430026.68	5.54	<0.01

Bibliography

Andrews, A. Micheal, "Are Individuals returning to the Market?" *Canadian Shareowner* 5 (1991):16-32.

Bain, Lee J. and Engelhardt Max, *Introduction to Probability and Mathematical Statistics,* USA: PWS-KENT Publishing Company (1992).

Beveridge, James, "Property in Recession," *Journal of Property Finance* 1 (1991) : 361-362.

Brown, Gerald R., "Buy-sell Strategies in the Hong Kong Commercial Property Market," *Journal of Property Finance* 7(1996):30-42.

Business Licence Information Centre, *Business Licence Information Service Homepage*, 4 January 2000. <http://licence.id.gcn.gov.hk/chi/index.htm>.

Case, Bradford, Henery O. Pollakowski and Susan M. Wachter, "Frequency of Transaction and House Price Modeling," *Journal of Real Estate Finance and Economic* 14 (1997):173-187.

Casella, George and Roger L. Berger, *Statistical Inference*, USA: Wadsworth, Inc (1990).

Chiu, Rebecca L. H., "The Swing of the Pendulum in Housing," *The Other Hong Kong Report 1998* (1999):329-353.

Chou, W. L. and Y. C. Shih, "Hong Kong Housing Markets: Overview, Tenure Choice, and Housing Demand," *Journal of Real Estate Finance and Economics* 10 (1995):7-12.

Cutler, David M,, James M, Poterba, and Lawerence H, Summers, "Speculative

Dynamics," *Review of Economic Studies* 58 (1991):529-546.

Cutler, David M. James M. Poterba and Lawerence H. Summers, "Speculative Dynamics and the Role of Feedback Traders," *AEA Papers and Proceedings* 80 (1990):63-68.

Epstein, Marc J. and Moses L. Pava, "Individual Investors' Perceptions on the Summary Annual Report: A Survey Approach," *Journal of Applied Business Research* 10 (1994):60-70.

Etter, Edwin R., Lynn Rees and James M Lukawitz, "The Usefulness to Individual and Institutional Investors of Annual Earnings Announcements and SEC filings by Non-U,S, Companies," *Journal of International Accounting Auditing & Taxation* 8 (1999):109-131.

Financial Secretary, *The Budget*, Hong Kong: Government Printer, various issues.

Fu, Yuming (1996), "Housing Market and Housing Policies," *The Other Hong Kong Report 1995* (1996):261-285.

Fu, Yuming, E. K. Leung and Wai Chung Lo, "The Dynamics of Residential Property Markets and the Stock Market in Hong Kong," *Technical Report Series of Asia-Pacific Financial and Forecasting (APFF) Research Centre* 3 (1994):1-16.

Fung, W. K., "Tung Warned on Pitfalls of Property Tax," *South China Morning Post* 19 June 1997:7.

Goodman, John L. Jr and Michael R. Grupe, "Top Ten Surprises about Ownership and Financing of Rental Housing," *Real Estate Finance* 11 (1995):42-48.

Hogg, Robert V. and Allen T. Craig, *Introduction to Mathematical Statistic,* USA: Prentice-Hall, Inc (1995).

Hong Kong Companies Registry, *CR Homepage*, 6 June 2000.

<http://www.info.gov.hk/cr>.

Hong Kong Inland Revenue Department, *IRD Homepage*, 2 May 2000. <http://www.info.gov.hk/ird>.

Hong Kong Monetary Authority, "Linked Exchange Rate System," *HKMA Homepage*, 1998. <http://www.info.gov.hk/hkma/eng/currency/index.htm>.

Hutchison, Norman E., "Housing as an Investment? A Comparison of Returns from Housing with Other Types of Investment," *Journal of Property Finance* 5 (1994):47-61.

Kim, Kyung-Hwan and Seoung Hwan Suh, "Speculation and Price Bubbles in the Korean and Japanese Real Estate Market," *Journal of Real Estate Finance and Economics* 6 (1993):73-87.

Lai, Lawrence W. C., "The Property Price Crisis," *The Other Hong Kong Report 1994* (1995):187-207.

Lau, K. Y., "Housing," *The Other Hong Kong Report 1991* (1992):343-387.

Leung Frankie Fook-lun, "To Invest or Not to Invest," *East Asian Executive Reports* 16 (1994):13-16.

Leung, W. T., "Housing," *The Other Hong Kong Report 1993* (1994):265-297.

"Lowest Affordability Rate in These 10 years," *Ming Pao* 2 November 1998:B4.

Lui, Francis T., "Hong Kong's Residential Housing Market and Housing Policies," *The Other Hong Kong Report 1997* (1998):357-375.

Massaro, Kerry, "Calling for the Next Revolution!" *Wall Street & Technology* 1 (2000):12.

Mok, Henry M. K., Patrick P. K. Chan and Yiu-sun Cho, "A Hedonic Price Model for Private Properties in Hong Kong," *Journal of Real Estate Finance and*

Economics 10 (1995):37-48.

Newell, Graeme and Kwong Wing Chau, "Linkages between Direct and Indirect Property Performance in Hong Kong," *Journal of Property Finance* 7 (1996):9-29.

Ng, K. C., "Officials Vow to Hit Target for Flat Ownership," *South China Morning Post* 18 February 2000:2.

Rypkema, Donovan D. and Bonnie R. Cohen, "Institutional Investors take another look at Residential Property," *Real Estate Finance* 3 (1987):60-75.

Sias, Richard W., "Price Pressure and the Role of Institutional Investors in Closed-end Funds," *Journal of Financial Research* 20 (1997):211-229.

Simmons, Patrick A (ed.), *Housing Statistics of the United States*, USA: Berman Press (1997).

Sito, Peggy, "BOC Backs Tax to Dampen Property Sector Speculation," *South China Morning Post* 26 June 1997, Business Post:1.

Sito, Peggy, "Tax on Housing Profits Urged," *South China Morning Post* 27 June 1997, Business Post:2.

Stanislas, Paul (1987), "British Investors in the U.S. Real Estate Market," *The Real Estate Finance Journal* 2 (1987):56-82.

Steele, Marion and Richard Goy, "Dhort Holds, the Distribtuions of First and Second Sales, and Bias in the Repeat-Sales Price Index," *Journal of Real Estate Finance and Economics* 14 (1997):133-154.

Tierney, David E. and Jeffery V. Bailey, "Oppertunistic Investing," *The Journal of Protfolio Management* 23 (1997):69-79.

Webb, James R., K. W. Chau and L. H. Li, "Past and Future Sources of Real

Estate Returns in Hong Kong," *Journal of Real Estate Research*, 13 (1997):251-271.

Wong, Luke S. K., "Housing and the Residential Environment," *The Other Hong Kong Report 1990* (1989):229-243.

Wong, Richard Y. C. and Samuel Staley, "Housing and Land," *The Other Hong Kong Report 1992* (1993):309-350.

Wonnacott, Thomas H. and Ronald J. Wonnacott, *Introductory Statistics for Business and Economics*, Canada: John Wiley & Sons, Inc. (1990).